

# Math Performance Standards (Grade Level Expectations) Grade 3

Each PSGLE includes a bolded statement called the "stem." Each stem is the same or similar across the grades for a given PSGLE and is meant to communicate the main curriculum and instructional focus of the PSGLE across the grades.

The first row of each table includes a heading that refers to the content standard, and the second row includes a heading that refers to the performance standard. (The content standard is a broad statement of what students should know; the performance standards state what students should know and be able to do at ages 5-7, 8-10, 11-14, and 15-18.) The second box includes the complete performance standards.

The coding indicates the content strand and the PSGLE number, so PSGLE [6] N-1 is content strand Numeration, and the first PSGLE for that content strand for grade 6.

<b>Content Standard A: Mathematical facts, concepts, principles, and theories</b>			
<b>Numeration: Understand and use numeration</b>			
<p><b>Numeration Performance Standards that apply to grade 3:</b> <b>M1.1.1</b> Read, write, order, count, and model one-to-one correspondence with whole numbers to 100. <b>M1.1.2</b> Use, model, and identify place value positions of 1's, 10's, and 100's. <b>M1.1.3</b> Model and explain the processes of addition and subtraction, describing the relationship between the operations. <b>M1.1.4</b> Select and use various representations of ordinal and cardinal numbers. <b>M1.1.5</b> Identify, model, and label simple fractions, describing and defining them as equal parts of a whole, a region, or a set. <b>M1.1.6</b> Identify, describe, and extend patterns inherent in the number system. Skip count by 2's 5's and 10's. Add and subtract by 10. Identify even and odd numbers. <b>M1.1.7</b> Demonstrate the commutative and identify properties of addition.</p> <p><b>Numeration Performance Standards that apply to grades 4-6:</b> <b>M1.2.1</b> Read, write, model, order, and count with positive whole numbers to 1,000,000 and negative whole numbers, and identify place value positions from 0.001 to 1,000,000. <b>M1.2.2</b> Use, model, and explain the processes of multiplication and division. Describe the relationships among the four basic operations. <b>M1.2.3</b> Model and explain the processes of multiplication and division. Describe the relationships among the four basic operations. <b>M1.2.4</b> Identify and describe different uses for the same numerical representation. <b>M1.2.5</b> Model and explain the process of adding and subtracting fractions with common denominators and decimals that represent money. <b>M1.2.6</b> Identify and describe factors and multiples including those factors and multiples common to a pair or set of numbers. <b>M1.2.7</b> Demonstrate the commutative and identify properties of multiplication.</p>			
<b>Understanding Numbers</b>			
<b>Grade 3</b>	<b>Grade 4</b>	<b>Grade 5</b>	<b>Grade 6</b>
<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• of whole numbers to one thousand by</li> </ul> <p>[3] N-1 reading, writing, ordering, or [counting L] (M1.1.1)</p> <p>[3] N-2 modeling (base ten blocks) or identifying place value positions to thousands (M1.1.2)</p>	<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• of whole numbers to <u>ten thousands</u> by</li> </ul> <p>[4] N-1 reading, writing, ordering, or [counting L] (M1.2.1)</p> <p>[4] N-2 modeling (base ten blocks) or identifying place value positions to <u>ten thousands</u> (M1.2.2)</p>	<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• of whole numbers to <u>millions</u> by</li> </ul> <p>[5] N-1 reading, writing, ordering, or [counting L] (M1.2.1)</p> <p>[5] N-2 identifying place value positions from <u>tenths to millions</u> (M1.2.2)</p>	<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• of <u>fractions (proper or mixed numbers), decimals, percents (whole number), or integers</u> by</li> </ul> <p>[6] N-1 reading, writing, ordering, or [counting L] (M1.2.1)</p> <p>[6] N-2 [identifying place value positions from thousandths to millions L] (M1.2.2)</p>

The number in brackets indicates the grade level.

Differences between grade levels are underlined.

The coding at the end of each PSGLE indicates the performance standard the

Some PSGLEs have been identified as Local. They are for local assessment and will not be on a state assessment.

Grade Level Expectations are written for assessment purposes. The PSGLEs should be written in a way so that it is clear what is expected of classroom instruction and/or state assessment.

#### Criteria for PSGLEs

1. The set of PSGLEs for each grade level should be reasonable to learn within a school year and still allow for learning additional state and local expectations.
2. PSGLEs should promote coherent, focused, developmentally appropriate instructions, as opposed to isolated instruction just on topics, facts, or individual skills.
3. Concepts, skills, and knowledge should be differentiated between adjacent grade levels.
4. PSGLEs should be of similar levels of specificity.
5. PSGLEs should show a continuum of learning. Success in one grade should be a good predictor of success the next year.

Note: Items differentiated with an "i.e." indicate that statewide assessment items may only be written to the content contained within the statement in the parentheses. Items differentiated with an "e.g." do not limit assessment items to that content, but indicate examples of content that may be used in statewide assessment items.

Math Performance Standards are organized into 10 content strands and are coded as follows:

N=Numeration

MEA=Measurement

E&C=Estimation and Computation

F&R=Functions and Relationships

G=Geometry

S&P=Statistics and Probability

PS=Process Skills (The Process Skills include Problem-Solving, Communication, Reasoning, and Connections.)

NOTE: All the PSGLEs for Process Skills are for local assessment. Process Skills that would be assessed on a state assessment have been embedded in PSGLEs for other content strands. For instance, a grade level expectation for the Statistics and Probability content strand for eighth grade is, “[Designing, collecting L], organizing, displaying, or explaining the classification of data in real-world problems.” That Grade Level Expectation for Statistics and Probability incorporates one of the Grade Level Expectations for Process Skills, “representing mathematical problems numerically, graphically, and/or symbolically.”

## Math Performance Standards (Grade Level Expectations)

**Content Standard A:** Mathematical facts, concepts, principles, and theories  
**Numeration:** Understand and use numeration  
**Measurement:** Select and use systems, units, and tools of measurement

**Numeration Performance Standards that apply to grade 3:** **M1.1.1** Read, write, order, count, and model one-to-one correspondence with whole numbers to 100. **M1.1.2** Use, model, and identify place value positions of 1's, 10's, and 100's. **M1.1.3** Model and explain the processes of addition and subtraction, describing the relationship between the operations. **M1.1.4** Select and use various representations of ordinal and cardinal numbers. **M1.1.5** Identify, model, and label simple fractions, describing and defining them as equal parts of a whole, a region, or a set. **M1.1.6** Identify, describe, and extend patterns inherent in the number system. Skip count by 2's 5's and 10's. Add and subtract by 10. Identify even and odd numbers. **M1.1.7** Demonstrate the commutative and identity properties of addition.

**Measurement Performance Standards that apply to grade 3:** **M2.1.1** Compare and order objects by various measurable attributes including calendar, temperature, length, weight, capacity, area, and volume. **M2.1.2** Compare objects to standard and non-standard units to identify objects that are greater than, less than, and equal to, a given unit. **M2.1.3** Choose a unit of measure, estimate the length or weight of objects and then measure to check for reasonableness. **M2.1.4** Tell time to the nearest half hour, distinguishing between morning, afternoon, and evening. **M2.1.5** Identify coins, their value, and the value of given sets of coins.

### Grade 3

Understanding Numbers	Understanding Meaning of Operations	Number Theory	Measurable Attributes
<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• <b>of whole numbers to one thousand by</b></li> </ul> <p>[3] N-1 reading, writing, ordering, or [counting L] (M1.1.1)</p> <p>[3] N-2 modeling (base ten blocks) or identifying place value positions to thousands (M1.1.2)</p> <p>[3] N-3 using appropriate representations of ordinal or cardinal numbers (M1.1.4)</p> <ul style="list-style-type: none"> <li>• <b>of simple fractions with denominators 2, 3, 4 or 10 by</b></li> </ul> <p>[3] N-4 identifying, describing with explanations, or illustrating equal parts of a whole, a region, or a set (using models) (M1.1.5)</p> <p>[3] N-5 identifying, describing with explanations, or illustrating equivalent representation of fractions (using models) (M1.1.5)</p>	<p><b>The student demonstrates conceptual understanding of mathematical operations by</b></p> <p>[3] N-6 [using models, explanations, number lines, or real-life situations L] describing or illustrating the processes of addition and subtraction of whole numbers and their relationships (M1.1.3)</p>	<p><b>The student demonstrates conceptual understanding of number theory by</b></p> <p>[3] N-7 [describing or illustrating identity property of addition L] (M1.1.7)</p> <p>[3] N-8 [modeling (with manipulatives) and explaining commutative property of addition L] (M1.1.7)</p> <p>[3] N-9 <b>identifying or using patterns in the number system (skip count by 2's, 5's, or 10's; add or subtract by 10; even or odd numbers) (M1.1.6)</b></p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p>[3] MEA-1 [estimating length to the nearest inch or foot L] (M2.1.3)</p> <p>[3] MEA-2 comparing and ordering objects according to measurable attribute (calendar, length, [temperature, weight, area, or volume L]) (M2.1.1)</p> <p>[3] MEA-3 identifying or describing objects that are greater than, less than, or equal to a unit of measure (standard or non-standard) (M2.1.2)</p> <p>[3] MEA-4 selecting an appropriate unit of English, metric, or non-standard measurement to estimate the length, time, weight, or temperature (M2.1.3)</p> <p>[3] MEA-5 identifying coins, their value, or the value of a set of coins (M2.1.5)</p>

## Math Performance Standards (Grade Level Expectations)

**Content Standard A:** Mathematical facts, concepts, principles, and theories

**Numeration:** Understand and use numeration

**Measurement:** Select and use systems, units, and tools of measurement

**Measurement Performance Standards that apply to grade 3:** **M2.1.1** Compare and order objects by various measurable attributes including calendar, temperature, length, weight, capacity, area, and volume. **M2.1.2** Compare objects to standard and non-standard units to identify objects that are greater than, less than, and equal to, a given unit. **M2.1.3** Choose a unit of measure, estimate the length or weight of objects and then measure to check for reasonableness. **M2.1.4** Tell time to the nearest half hour, distinguishing between morning, afternoon, and evening. **M2.1.5** Identify coins, their value, and the value of given sets of coins.

**Estimation and Computation Performance Standards that apply to grade 3:** **M3.1.1** Make reasonable estimates of “how many” and “how much”; estimate the results of simple addition and subtraction problems. **M3.1.2** Recall and use basic addition and subtraction facts orally and with paper and pencil without a calculator. **M3.1.3** Add and subtract whole numbers to 100 using a variety of models and algorithms. **M3.1.4** Model multiplication as repeated addition and grouping objects; model division as “sharing equally” and grouping objects.

**Functions and Relationships Performance Standards that apply to grade 3:** **M4.1.1** Recognize, describe, create, and extend repeating and increasing patterns with a variety of materials including symbols, objects, and manipulatives. **M4.1.2** Generate and solve simple functions by identifying and applying addition and subtraction patterns. **M4.1.3** Use a calculator to find and extend patterns in the number system. **M4.1.4** Complete open space sentences with missing numbers; use appropriate vocabulary including greater than, less than, and equal to; and use the correct symbols.

### Grade 3

Measurement Techniques	Estimation	Computation	Describing Patterns and Functions
<p><b>The student demonstrates ability to use measurement techniques using pictorial representations [or manipulatives L] in real-world contexts by</b></p> <p>[3] <b>MEA-6</b> measuring length to the nearest half-inch (M2.1.3)</p> <p>[3] <b>MEA-7</b> telling time to the nearest ¼ hour using an analog clock or [distinguishing morning, afternoon, or evening L] (M2.1.4)</p> <p>[3] <b>MEA-8</b> determining elapsed time using a calendar (M2.2.5)</p> <p>[3] <b>MEA-9</b> [counting back change from \$1.00 L] (M2.2.6)</p>	<p><b>The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by</b></p> <p>[3] <b>E&amp;C-1</b> finding “how many” or “how much” to 50 (M3.1.1)</p> <p>[3] <b>E&amp;C-2</b> estimating the results of simple addition and subtraction problems up to <u>1,000</u> (M3.1.1)</p>	<p><b>The student accurately solves problems (including real-world situations) involving</b></p> <p>[3] <b>E&amp;C-3</b> [recalling basic addition and subtraction facts, sums to 20, and corresponding subtraction facts efficiently L] (M3.1.2)</p> <p>[3] <b>E&amp;C-4</b> adding or subtracting two-digit whole numbers (M3.1.3)</p> <p>[3] <b>E&amp;C-5</b> using repeated addition to model multiplication with whole numbers with products to 25 (M3.1.4)</p> <p>[3] <b>E&amp;C-6</b> using grouping or “sharing equally” to model division with whole numbers to 25 (M3.1.4)</p>	<p><b>The student demonstrates conceptual understanding of functions by</b></p> <p>[3] <b>F&amp;R-1</b> identifying a missing element in a pattern up to the next three terms (identifying a number using addition or subtraction or objects); or explaining how missing elements could be found (M4.1.1)</p> <p><b>F&amp;R-2</b> [expressing a generalization of a pattern using words L] (M4.1.1 &amp; M4.1.2)</p> <p>[3] <b>F&amp;R-3</b> [using manipulatives, including a calculator, as tools when describing, extending, or representing patterns L] (M4.1.1 &amp; M4.1.3)</p>

## Math Performance Standards (Grade Level Expectations)

**Content Standard A:** Mathematical facts, concepts, principles, and theories.

**Measurement:** Select and use systems, units, and tools of measurement

**Estimation and Computation:** Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools

**Functions and Relationships:** Represent, analyze, and use patterns, relations, and functions

**Functions and Relationships Performance Standards that apply to grade 3:** **M4.1.1** Recognize, describe, create, and extend repeating and increasing patterns with a variety of materials including symbols, objects, and manipulatives. **M4.1.2** Generate and solve simple functions by identifying and applying addition and subtraction patterns. **M4.1.3** Use a calculator to find and extend patterns in the number system. **M4.1.4** Complete open space sentences with missing numbers; use appropriate vocabulary including greater than, less than, and equal to; and use the correct symbols.

**Geometry Performance Standards that apply to grade 3:** **M5.1.1** Identify, sort, describe, model, and compare circles, triangles, and rectangles including squares regardless of orientation. **M5.1.2** Identify, sort, describe, model, and compare solid figures including cubes, cylinders, and spheres. **M5.1.3** Identify and create examples of line symmetry; compare and describe given circles, triangles, and rectangles as larger, smaller, or congruent. **M5.1.4** Demonstrate conservation of area using drawings or manipulatives. **M5.1.5** Describe and identify geometric transformations including slides, flips, and turns. **M5.1.6** Use comparative directional and positional words: above, below, inside, outside, on, in, right and left, horizontal, vertical, and middle. **M5.1.7** Draw and build familiar shapes.

### Grade 3

Modeling and Solving Equations and Inequalities	Geometric Relationships	Similarity, Congruence, Symmetry, and Transformation of Shapes	Perimeter, Area, Volume, and Surface Area
<p><b>The student demonstrates algebraic thinking by</b></p> <p>[3] <b>F&amp;R-4</b> using an open number sentence (addition or subtraction) to solve for an unknown represented by a box or circle (e.g., <math>5+=16</math>, <math>-7=4</math>, <math>5+2=</math>) (M4.1.4)</p> <p>[3] <b>F&amp;R-5</b> using appropriate vocabulary or symbols for greater than, less than, or equal to (M4.1.4)</p>	<p><b>The student demonstrates an understanding of geometric relationships by</b></p> <p>[3] <b>G-1</b> using the number or length of sides to identify, describe, [model L], or compare triangles or rectangles (including squares) (M5.1.1)</p> <p>[3] <b>G-2</b> using the attributes and properties of plane figures to [model L], identify, compare, or describe plane figures (circles, rectangles, squares, and triangles)[and solid figures (cubes, cylinders, or spheres) L] (M5.1.1 &amp; M5.1.2)</p>	<p><b>The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by</b></p> <p>[3] <b>G-3</b> identifying, creating, or drawing lines of symmetry for real-world objects (e.g., block letters, flags, insects) (M5.1.3)</p> <p>[3] <b>G-4</b> comparing or describing shapes (circles, triangles, or rectangles) as “larger than,” “smaller than,” or “congruent to,” a given shape (M5.1.3)</p> <p>[3] <b>G-5</b> illustrating or identifying the results of transformations (slides) of polygons (M5.1.5)</p>	<p><b>The student solves problems using perimeter or area by</b></p> <p>[3] <b>G-6</b> estimating or determining area or perimeter of rectangular or square shapes on grids (M5.1.4)</p>

## Math Performance Standards (Grade Level Expectations)

<p><b>Content Standard A:</b> Mathematical facts, concepts, principles, and theories.  <b>Geometry:</b> Construct, transform, and analyze geometric figures.  <b>Statistics and Probability:</b> Formulate questions, gather and interpret data, and make predictions</p>			
<p><b>Geometry Performance Standards that apply to grade 3:</b> <b>M5.1.1</b> Identify, sort, describe, model, and compare circles, triangles, and rectangles including squares regardless of orientation. <b>M5.1.2</b> Identify, sort, describe, model, and compare solid figures including cubes, cylinders, and spheres. <b>M5.1.3</b> Identify and create examples of line symmetry; compare and describe given circles, triangles, and rectangles as larger, smaller, or congruent. <b>M5.1.4</b> Demonstrate conservation of area using drawings or manipulatives. <b>M5.1.5</b> Describe and identify geometric transformations including slides, flips, and turns. <b>M5.1.6</b> Use comparative directional and positional words: above, below, inside, outside, on, in, right and left, horizontal, vertical, and middle. <b>M5.1.7</b> Draw and build familiar shapes.  <b>Statistics and Probability Performance Standards that apply to grade 3:</b> <b>M6.1.1</b> Collect, record, organize, display, and explain the classification of data. <b>M6.1.2</b> Describe data from a variety of visual displays including tallies, tables, pictographs, bar graphs, and Venn diagrams. <b>M6.1.3</b> Use the terms “maximum” and “minimum” when working with a data set. <b>M6.1.4</b> Find and record the possibilities of simple probability experiments; explain differences between chance and certainty, giving examples. <b>M6.1.5</b> Conduct a survey and tally the results.</p>			
<b>Grade 3</b>			
Position and Direction	Construction	Analysis and Central Tendency	Probability
<p><b>The student demonstrates understanding of position and direction by</b></p> <p>[3] <b>G-7</b> [using directional terms (inside, outside, right, left, horizontal, vertical) to describe relative location of objects in a picture L] (M5.1.6)</p>	<p><b>The student demonstrates a conceptual understanding of geometric drawings or constructions by</b></p> <p>[3] G-8 [drawing real-world objects that consist of geometric shapes (squares, rectangles, triangles, or circles) L] (M5.1.7)</p> <hr/> <p><b>Data Display</b></p> <p><b>The student demonstrates an ability to classify and organize data by</b></p> <p>[3] <b>S&amp;P-1</b> [designing an investigation and collecting, recording L], organizing, displaying, or explaining the classification of data in real-world problems (e.g., literature, self, or family), using bar graphs, and [Venn diagrams L] (M6.1.1, M6.1.2, &amp; M6.1.5)</p>	<p><b>The student demonstrates an ability to analyze data (comparing, explaining, interpreting, or justifying conclusions) by</b></p> <p>[3] <b>S&amp;P-2</b> using information from a variety of displays (tallies, tables, pictographs, bar graphs, or [Venn diagrams L] (M6.1.2)</p> <p>[3] <b>S&amp;P-3</b> using the terms “maximum” or “minimum” (M6.1.3)</p>	<p><b>The student demonstrates a conceptual understanding of probability by</b></p> <p>[3] <b>S&amp;P-4</b> [explaining the differences between chance and certainty or recognizing events that may be certain or chance events L] (M6.1.4)</p> <p>[3] <b>S&amp;P-5</b> [Finding and recording L] and making predictions about the likelihood of outcomes of a simple probability experiment (e.g., spinner, tossing a coin) (M6.1.4)</p>

## Math Performance Standards (Grade Level Expectations)

<p><b>Content Standards B, C, D, and E:</b> Process skills and abilities  <b>Applying conceptual knowledge and skills as designated in all strands of Content Standard A by problem solving, communicating, reasoning, and making connections</b></p>			
<p><b>Problem-Solving Performance Standards that apply to grade 3:</b> <b>M7.1.1</b> Formulate problems from practical and mathematical activities. <b>M7.1.2</b> Develop and apply strategies including guess and check, modeling and acting out, drawings, and extending patterns to solve a variety of problems. <b>M7.1.3</b> Predict an answer before solving a problem and compare results to check for reasonableness.</p> <p><b>Communication Performance Standards that apply to grade 3:</b> <b>M8.1.1</b> Translate problems from everyday language into math language and symbols. <b>M8.1.2</b> Use manipulatives, models, pictures, and language to represent and communicate mathematical ideas. <b>M8.1.3</b> Use everyday language to explain thinking about problem solving strategies and solutions to problems.</p> <p><b>Reasoning Performance Standards that apply to grade 3:</b> <b>M9.1.1</b> Draw conclusions about mathematical problems. <b>M9.1.2</b> Find examples that support or refute mathematical statements. <b>M9.1.3</b> Explain why a prediction, estimation, or solution is reasonable.</p> <p><b>Connections Performance Standards that apply to grade 3:</b> <b>M10.1.1</b> Apply mathematical skills and processes to literature. <b>M10.1.2</b> Apply mathematical skills and processes to situations with self and family.</p>			
<b>Grade 3</b>			
<p><b>Problem Solving:</b> Understand and be able to select and use a variety of problem-solving strategies</p>	<p><b>Communication:</b> Form and use appropriate methods to define and explain mathematical relationships</p>	<p><b>Reasoning:</b> Use logic and reason to solve mathematical problems</p>	<p><b>Connections:</b> Apply mathematical concepts and processes to situations within and outside of school.</p>
<p><b>The student demonstrates an ability to problem solve by</b></p> <p>[3] <b>PS-1</b> selecting and applying an appropriate strategy (e.g., guess and check; draw a picture; make a model, extend a pattern) to solve a variety of problems (M7.1.2)</p>	<p><b>The student communicates his or her mathematical thinking by</b></p> <p>[3] <b>PS-2 representing mathematical problems using manipulatives, models, pictures, and/or everyday language; or using everyday language to explain thinking about the problem-solving strategies and solutions to problems (M8.1.1, M8.1.2, &amp; M8.1.3)</b></p>	<p><b>The student demonstrates an ability to use logic and reason by</b></p> <p>[3] <b>PS-3</b> drawing conclusions about mathematical problems; or finding examples that support or refute mathematical statements (M9.1.1 &amp; M9.1.2)</p> <p>[3] <b>PS-4</b> explaining whether or not a prediction, estimation, or solution is reasonable (M9.1.3)</p>	<p><b>The student understands and applies mathematical skills and processes across the content strands by</b></p> <p>[3] <b>PS-5 using real-world contexts such as literature, self, and family (M10.1.1. &amp; M10.1.2)</b></p>