

# Math Performance Standards (Grade Level Expectations) Kindergarten-Grade 2

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 for ages 5-7.

The coding indicates the content strand and the PSGLE number, so PSGLE [2] MEA-1 is content strand Measurement, and the first PSGLE for that content strand for grade 2.

<b>Content Standard A: Mathematical facts, concepts, principles, and theories</b>			
<b>Measurement: Select and use systems, units, and tools of measurement</b>			
<b>Measurement Performance Standards that apply to grades K-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.</b>			
<b>Measurable Attributes</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[K] MEA-1</b> making comparisons between objects using concepts of big/little, long/short, large/small, more/less, same (M2.1.1)</p> <p><b>[K] MEA-2</b> identifying coins by name: penny, nickel, dime and quarter (M2.1.5)</p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[1] MEA-1</b> measuring and/or comparing objects using standard and nonstandard units (M2.1.2)</p> <p><b>[1] MEA-2</b> identifying money by its value (e.g., penny, nickel, dime, quarter, dollar) (M2.1.5)</p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[2] MEA-1</b> measuring to the nearest inch or foot (M2.1.3)</p> <p><b>[2] MEA-2</b> comparing and ordering objects by length, weight, area, time, temperature (M2.1.1)</p> <p><b>[2] MEA-3</b> comparing objects to standard and nonstandard units to identify objects that are greater than, less than, and equal to a given unit (M2.1.2)</p> <p><b>[2] MEA-4</b> identifying coins, their value, or the value of a set of coins up to one dollar (M2.1.5)</p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[3] MEA-1</b> [estimating length to the nearest inch or foot L] (M2.1.3)</p> <p><b>[3] MEA-2</b> comparing and ordering objects according to measurable attribute (calendar, length, [temperature, weight, area, or volume L]) (M2.1.1)</p> <p><b>[3] MEA-3</b> 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><b>[3] MEA-4</b> selecting an appropriate unit of English, metric, or non-standard measurement to estimate the length, time, weight, or temperature (M2.1.3)</p> <p><b>[3] MEA-5</b> identifying coins, their value, or the value of a set of coins (M2.1.5)</p>

The number or letter in brackets indicates the grade level.

The coding at the end of each PSGLE indicates the performance standard the PSGLE is aligned to.

Note: Grade 3 PSGLEs are included in this draft document to show the progression from kindergarten to grade 3.

## Math Performance Standards (Grade Level Expectations) Grades K-2

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

#### Numeration: Understand and use numeration

**Numeration Performance Standards that apply to grades K-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.

### Understanding Numbers

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• <b>of whole numbers to 20 by</b></li> </ul> <p>[K] N-1 demonstrating 1-1 correspondence (M1.1.1)</p> <p>[K] N-2 recognizing and counting whole numbers from 0-20 (M1.1.1)</p> <p>[K] N-3 writing and ordering whole numbers from 0-20 (M1.1.1)</p> <p>[K] N-4 counting whole numbers backwards from 10 to 0 (M1.1.1)</p> <p>[K] N-5 identifying ordinal position, first to the tenth (M1.1.4)</p> <ul style="list-style-type: none"> <li>• <b>of simple fractions</b></li> </ul> <p>[K] N-6 dividing an even numbered set of concrete objects (up to 20) into halves (M1.1.5)</p> <p>[K] N-7 identifying halves (M1.1.5)</p> <p>[K] N-8 identifying full, half full, and empty containers (M1.1.5)</p>	<p><b>The student demonstrates conceptual understanding</b></p> <ul style="list-style-type: none"> <li>• <b>of whole numbers to one hundred by</b></li> </ul> <p>[1] N-1 reading, writing, ordering/counting and modeling correspondence of whole numbers</p> <p>[1] N-2 comparing whole numbers using the words greater than, less than or equal to</p> <p>[1] N-3 identifying ordinal position, first to the twentieth (M1.1.4)</p> <ul style="list-style-type: none"> <li>• <b>of simple fractions</b></li> </ul> <p>[1] N-4 dividing an even numbered set of concrete objects (up to 50) into halves (M1.1.5)</p> <p>[1] N-5 dividing geometric shapes into equal halves, fourths, and thirds (M1.1.5)</p>	<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>[2] N-1 reading, writing, ordering/counting and modeling correspondence of whole numbers (M1.1.1)</p> <p>[2] N-2 modeling and identifying place value positions: ones, tens, and hundreds (M1.1.2)</p> <ul style="list-style-type: none"> <li>• <b>of simple fractions</b></li> </ul> <p>[2] N-3 identifying fractions as equal parts of a whole, a region, or a set (M1.1.5)</p> <p>[2] N-4 reading and writing numerals for simple fractions (M1.1.5)</p>	<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>

## Math Performance Standards (Grade Level Expectations) Grades K-2

<b>Understanding Meaning of Operations</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates conceptual understanding of mathematical operations by</b></p> <p><b>[K] N-9</b> recognizing (+), (-), and (=) signs (M1.1.3)</p> <p><b>[K] N-10</b> using objects or pictures to model addition and subtraction of whole numbers (M1.1.3)</p> <p><b>[K] N-11</b> using number lines or objects related to real situations (M1.1.3)</p>	<p><b>The student demonstrates conceptual understanding of mathematical operations by</b></p> <p><b>[1] N-6</b> using objects, pictures, and problem situations to model addition and subtraction of whole numbers (M1.1.3)</p> <p><b>[1] N-7</b> identifying groups of objects as repeated addition or equal shares (M1.1.3)</p>	<p><b>The student demonstrates conceptual understanding of mathematical operations by</b></p> <p><b>[2] N-5</b> 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 mathematical operations by</b></p> <p><b>[3] N-6</b> [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>

<b>Number Theory</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates conceptual understanding of number theory by</b></p> <p><b>[K] N-12</b> demonstrating skip counting by 2's, 5's, and 10's with support (M1.1.6)</p>	<p><b>The student demonstrates conceptual understanding of number theory by</b></p> <p><b>[1] N-8</b> skip counting by 2's to 20 and 5's and 10's to 100 (M1.1.6)</p> <p><b>[1] N-9</b> identifying odd and even numbers up to 20 (M1.1.6)</p> <p><b>[1] N-10</b> identifying fact families (M1.1.3)</p>	<p><b>The student demonstrates conceptual understanding of number theory by</b></p> <p><b>[2] N-6</b> modeling or explaining the commutative and identity properties of addition (M1.1.7)</p> <p><b>[2] N-7</b> identifying or using patterns in the number system (skip count by 2's, 5's, or 10's; add or subtract by 10; identify even or odd numbers) (M1.1.6)</p> <p><b>[2] N-8</b> modeling fact families (M1.1.3)</p>	<p><b>The student demonstrates conceptual understanding of number theory by</b></p> <p><b>[3] N-7</b> [describing or illustrating identity property of addition L] (M1.1.7)</p> <p><b>[3] N-8</b> [modeling (with manipulatives) and explaining commutative property of addition L] (M1.1.7)</p> <p><b>[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)</p>

## Math Performance Standards (Grade Level Expectations) Grades K-2

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

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

**Measurement Performance Standards that apply to grades K-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.

### Measurable Attributes

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[K] MEA-1</b> making comparisons between objects using concepts of big/little, long/short, large/small, more/less, same (M2.1.1)</p> <p><b>[K] MEA-2</b> identifying coins by name: penny, nickel, dime, and quarter (M2.1.5)</p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[1] MEA-1</b> measuring and/or comparing objects using standard and nonstandard units (M2.1.2)</p> <p><b>[1] MEA-2</b> identifying money by its value (e.g., penny, nickel, dime, quarter, dollar) (M2.1.5)</p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[2] MEA-1</b> measuring to the nearest inch or foot (M2.1.3)</p> <p><b>[2] MEA-2</b> comparing and ordering objects by length, weight, area, time, temperature (M2.1.1)</p> <p><b>[2] MEA-3</b> comparing objects to standard and nonstandard units to identify objects that are greater than, less than, and equal to a given unit (M2.1.2)</p> <p><b>[2] MEA-4</b> identifying coins, their value, or the value of a set of coins up to one dollar (M2.1.5)</p>	<p><b>The student demonstrates understanding of measurable attributes by</b></p> <p><b>[3] MEA-1</b> [estimating length to the nearest inch or foot L] (M2.1.3)</p> <p><b>[3] MEA-2</b> comparing and ordering objects according to measurable attribute (calendar, length, [temperature, weight, area, or volume L]) (M2.1.1)</p> <p><b>[3] MEA-3</b> 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><b>[3] MEA-4</b> selecting an appropriate unit of English, metric, or non-standard measurement to estimate the length, time, weight, or temperature (M2.1.3)</p> <p><b>[3] MEA-5</b> identifying coins, their value, or the value of a set of coins (M2.1.5)</p>

## Math Performance Standards (Grade Level Expectations) Grades K-2

<b>Measurement Techniques</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates ability to use measurement techniques by</b></p> <p>[K] <b>MEA-3</b> identifying instruments used to measure length, time, and temperature (M2.1.3)</p> <p>[K] <b>MEA-4</b> naming in sequence the days of the week (M2.1.1)</p> <p>[K] <b>MEA-5</b> telling time to the hour using analog and digital clocks (M2.1.4)</p>	<p><b>The student demonstrates ability to use measurement techniques by</b></p> <p>[1] <b>MEA-3</b> drawing a line segment to the nearest inch (M2.1.3)</p> <p>[1] <b>MEA-4</b> telling time to the nearest half hour using analog and digital clocks (M2.1.4)</p> <p>[1] <b>MEA-5</b> comparing concepts such as: before/after, shorter/longer (M2.1.1)</p> <p>[1] <b>MEA-6</b> reading a calendar (distinguishing yesterday, today, and tomorrow) (M2.1.1)</p> <p>[1] <b>MEA-7</b> recognizing money symbols (\$, ¢) (M2.1.5)</p> <p>[1] <b>MEA-8</b> identifying equal values of a coin up to a dollar (5 pennies = 1 nickel, 5 nickels = 1 quarter) (M2.1.5)</p>	<p><b>The student demonstrates ability to use measurement techniques by</b></p> <p>[2] <b>MEA-5</b> selecting and using appropriate tools of measurement (M2.1.3)</p> <p>[2] <b>MEA-6</b> drawing a line segment to the nearest half inch (M2.1.3)</p> <p>[2] <b>MEA-7</b> telling time to the nearest ¼ hour using analog and digital clocks (M2.1.4)</p> <p>[2] <b>MEA-8</b> ordering the months of the year (M2.1.1)</p> <p>[2] <b>MEA-9</b> writing the date using words and numbers (day, month, year) (M2.1.1)</p> <p>[2] <b>MEA-10</b> counting change (coins) up to a dollar (M2.1.5)</p> <p>[2] <b>MEA-11</b> recognizing money symbols including a decimal point (\$, ¢, .) (M2.1.5)</p> <p>[2] <b>MEA-12</b> identifying equal values of coins up to a dollar (M2.1.5)</p>	<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>

## Math Performance Standards (Grade Level Expectations) Grades K-2

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

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

**Estimation and Computation Performance Standards that apply to grades K-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.

### Estimation

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by</b></p> <p><b>[K] E&amp;C-1</b> comparing the number of objects in different sets using more, less, same</p> <p><b>[K] E&amp;C-2</b> estimating the number of objects in a given set as more or less than 10 (M3.1.1)</p>	<p><b>The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by</b></p> <p><b>[1] E&amp;C-1</b> estimating “how many” and “how much” in a given set up to 20</p> <p><b>[1] E&amp;C-2</b> identifying whether estimation or counting is appropriate with support (M3.1.1)</p>	<p><b>The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by</b></p> <p><b>[2] E&amp;C-1</b> estimating “how many” and “how much” in a given set up to 30</p> <p><b>[2] E&amp;C-2</b> estimating the results of simple addition and subtraction problems up to <u>100</u> (M3.1.1)</p> <p><b>[2] E&amp;C-3</b> identifying whether estimation or counting is appropriate (M3.1.1)</p>	<p><b>The student determines reasonable answers to real-life situations, paper/pencil computations, or calculator results by</b></p> <p><b>[3] E&amp;C-1</b> finding “how many” or “how much” to 50 (M3.1.1)</p> <p><b>[3] E&amp;C-2</b> estimating the results of simple addition and subtraction problems up to <u>1,000</u> (M3.1.1)</p>

### Computation

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student accurately solves problems (including real-world situations) involving</b></p> <p><b>[K] E&amp;C-3</b> adding and subtracting whole numbers up to ten using manipulatives (M3.1.3)</p>	<p><b>The student accurately solves problems (including real-world situations) involving</b></p> <p><b>[1] E&amp;C-3</b> recalling addition and subtraction facts 0-10 (M3.1.2)</p> <p><b>[1] E&amp;C-4</b> recalling doubles to 20 (M3.1.2)</p>	<p><b>The student accurately solves problems (including real-world situations) involving</b></p> <p><b>[2] E&amp;C-4</b> recalling addition and subtraction facts to 20 (M3.1.2)</p> <p><b>[2] E&amp;C-5</b> solving two-digit addition and subtraction problems using a variety of models and algorithms (M3.1.3)</p> <p><b>[2] E&amp;C-6</b> using repeated addition with objects to model multiplication (M3.1.4)</p> <p><b>[2] E&amp;C-7</b> using equal shares with objects to model division (M3.1.4)</p>	<p><b>The student accurately solves problems (including real-world situations) involving</b></p> <p><b>[3] 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><b>[3] E&amp;C-4</b> adding or subtracting two-digit whole numbers (M3.1.3)</p> <p><b>[3] E&amp;C-5</b> using repeated addition to model multiplication with whole numbers with products to 25 (M3.1.4)</p> <p><b>[3] E&amp;C-6</b> using grouping or “sharing equally” to model division with whole numbers to 25 (M3.1.4)</p>

## Math Performance Standards (Grade Level Expectations) Grades K-2

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

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

**Functions and Relationships Performance Standards that apply to grades K-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.

#### Describing Patterns and Functions

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates conceptual understanding of functions, patterns, or sequences by</b></p> <p>[K] <b>F&amp;R-1</b> recognizing patterns found in common objects, sounds, and movements (M4.1.1)</p> <p>[K] <b>F&amp;R-2</b> identifying, sorting, and classifying objects by attribute and identifying objects that do not belong to a particular group (M4.1.1)</p> <p>[K] <b>F&amp;R-3</b> recognizing, identifying, and continuing simple patterns of color, shape, or size (M4.1.1)</p>	<p><b>The student demonstrates conceptual understanding of functions, patterns, or sequences by</b></p> <p>[1] <b>F&amp;R-1</b> identifying, naming (e.g., aabb, abab), and continuing a variety of patterns (M4.1.1)</p> <p>[1] <b>F&amp;R-2</b> creating patterns involving number, shape, size, rhythm, or color (M4.1.1)</p>	<p><b>The student demonstrates conceptual understanding of functions, patterns, or sequences by</b></p> <p>[2] <b>F&amp;R-1</b> identifying and continuing patterns, including numbers (M4.1.1)</p> <p>[2] <b>F&amp;R-2</b> describing a rule or relation that determines and continues a sequence or pattern (M4.1.1)</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>

#### Modeling and Solving Equations and Inequalities

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates algebraic thinking by</b></p> <p>[K] <b>F&amp;R-4</b> adding or subtracting whole numbers to 10 using manipulatives to solve story problems (M4.1.4)</p> <p>[K] <b>F&amp;R-5</b> showing more, less, or equal to using objects (M4.1.4)</p>	<p><b>The student demonstrates algebraic thinking by</b></p> <p>[1] <b>F&amp;R-3</b> adding and subtracting whole numbers to 20 using manipulatives to solve story problems (M4.1.4)</p> <p>[1] <b>F&amp;R-4</b> creating and solving problems using words, symbols, and drawings (M4.1.4)</p> <p>[1] <b>F&amp;R-5</b> using the terms equal to, more than, and less than for numbers up to 20 (M4.1.4)</p>	<p><b>The student demonstrates algebraic thinking by</b></p> <p>[2] <b>F&amp;R-3</b> solving a problem with an unknown (e.g., <math>7 + ? = 10</math>) (M4.1.4)</p> <p>[2] <b>F&amp;R-4</b> using the terms equal to, greater than, and less than for numbers up to 100 (M4.1.4)</p>	<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 + \square = 16</math>, <math>-7 = 4</math>, <math>5 + 2 = \square</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>

## Math Performance Standards (Grade Level Expectations) Grades K-2

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

**Geometry: Construct, transform, and analyze geometric figures.**

**Geometry Performance Standards that apply to grades K-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.

### Geometric Relationships

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates an understanding of geometric relationships by</b></p> <p>[K] <b>G-1</b> sorting and classifying shapes according to similar attributes (M5.1.1)</p> <p>[K] <b>G-2</b> describing objects using three attributes such as size, color, and shape (M5.1.1)</p> <p>[K] <b>G-3</b> identifying triangle, circle, rectangle, and square (M5.1.1)</p>	<p><b>The student demonstrates an understanding of geometric relationships by</b></p> <p>[1] <b>G-1</b> identifying the attributes of 2-dimensional shapes (e.g., a triangle has three sides) (M5.1.1)</p> <p>[1] <b>G-2</b> identifying and classifying 2 dimensional shapes through visual observations and properties (e.g., which of these shapes is a triangle) (M5.1.1)</p> <p>[1] <b>G-3</b> relating real-world examples (e.g., a door is shaped like a rectangle) to the ideas and concepts of geometry (M5.1.2)</p>	<p><b>The student demonstrates an understanding of geometric relationships by</b></p> <p>[2] <b>G-1</b> describing attributes of a triangle, circle, square, and rectangle (M5.1.1)</p> <p>[2] <b>G-2</b> identifying and classifying 3-dimensional shapes (e.g., cone, sphere and cylinder) (M5.1.1)</p> <p>[2] <b>G-3</b> relating real-world examples to the ideas and concepts of geometry* (M5.1.2)</p> <p>[2] <b>G-4</b> constructing, comparing, classifying, and describing the relationship among geometric figures (M5.1.2)</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>

### Similarity, Congruence, Symmetry, and Transformation of Shapes

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by</b></p> <p>[K] <b>G-4</b> comparing geometric shapes (M5.1.3)</p>	<p><b>The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by</b></p> <p>[1] <b>G-4</b> comparing shapes in the real world (M5.1.3)</p>	<p><b>The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by</b></p> <p>[2] <b>G-5</b> creating simple shapes using concrete materials/manipulatives (M5.1.3)</p> <p>[2] <b>G-6</b> identifying or drawing lines of symmetry for simple shapes (M5.1.3)</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>

\*Assumes an increasing level of mathematical skill applications

## Math Performance Standards (Grade Level Expectations) Grades K-2

<b>Perimeter, Area, Volume, and Surface Area</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student solves problems using perimeter or area by</b></p> <p>Not addressed at this grade level.</p>	<p><b>The student solves problems using perimeter or area by</b></p> <p>Not addressed at this grade level.</p>	<p><b>The student solves problems using perimeter or area by</b></p> <p>[2] <b>G-7</b> explaining the difference between perimeter and area (M5.1.4)</p> <p>[2] <b>G-8</b> determining perimeter and area of rectangular shapes using grid paper and/or manipulatives (M5.1.4)</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>

<b>Position and Direction</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates understanding of position and direction by</b></p> <p>[K] <b>G-5</b> identifying positions of objects that are above, below, before, after, next to, in the middle of, in front of, behind... (M5.1.6)</p>	<p><b>The student demonstrates understanding of position and direction by</b></p> <p>[1] <b>G-5</b> modeling directional and positional concepts: before, after, between, next to, around, above, below, in the middle of... (M5.1.6)</p>	<p><b>The student demonstrates understanding of position and direction by</b></p> <p>[2] <b>G-9</b> describing relative locations of objects using directional terms (inside, outside, right, left) (M5.1.6)</p> <p>[2] <b>G-10</b> creating a simple map to show location of objects (M5.1.6)</p>	<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>

<b>Construction</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates a conceptual understanding of geometric drawings or constructions by</b></p> <p>[K] <b>G-6</b> drawing, copying, or describing triangles, squares, rectangles and circles (M5.1.7)</p>	<p><b>The student demonstrates a conceptual understanding of geometric drawings or constructions by</b></p> <p>[1] <b>G-6</b> drawing, copying, or describing a variety of shapes (M5.1.7)</p> <p>[1] <b>G-7</b> identifying geometric shapes in real-world objects (M5.1.7)</p>	<p><b>The student demonstrates a conceptual understanding of geometric drawings or constructions by</b></p> <p>[2] <b>G-11</b> drawing, copying, or describing a variety of shapes* (M5.1.7)</p>	<p><b>The student demonstrates a conceptual understanding of geometric drawings or constructions by</b></p> <p>[3] <b>G-8</b> [drawing real-world objects that consist of geometric shapes (squares, rectangles, triangles, or circles) L] (M5.1.7)</p>

\*Assumes an increasing level of mathematical skill applications

## Math Performance Standards (Grade Level Expectations) Grades K-2

### Content Standard A: Mathematical facts, concepts, principles, and theories Statistics and Probability: Formulate questions, gather and interpret data, and make predictions

**Statistics and Probability Performance Standards that apply to grades K-3:** **M6.1.1** Collect, record, organize, display, and explain the classification of data. **M6.1.2** Describe data from a variety of visual displays including tallies, tables, pictographs, bar graphs, and Venn diagrams. **M6.1.3** Use the terms “maximum” and “minimum” when working with a data set. **M6.1.4** Find and record the possibilities of simple probability experiments; explain differences between chance and certainty, giving examples. **M6.1.5** Conduct a survey and tally the results.

#### Data Display

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates an ability to classify and organize data by</b></p> <p>[K] <b>S&amp;P-1</b> constructing real graphs using concrete objects or pictographs with support (M6.1.1)</p> <p>[K] <b>S&amp;P-2</b> collecting and recording data with support (M6.1.1)</p>	<p><b>The student demonstrates an ability to classify and organize data by</b></p> <p>[1] <b>S&amp;P-1</b> constructing and using real graphs, pictographs, and bar graphs (M6.1.1)</p> <p>[1] <b>S&amp;P-2</b> collecting and recording data (M6.1.1)</p> <p>[1] <b>S&amp;P-3</b> interpreting data with support (M6.1.1)</p>	<p><b>The student demonstrates an ability to classify and organize data by</b></p> <p>[2] <b>S&amp;P-1</b> constructing a variety of graphs from realistic situations (M6.1.1)</p> <p>[2] <b>S&amp;P-2</b> collecting, recording, interpreting, and representing data in a variety of ways (M6.1.1)</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>

#### Analysis and Central Tendency

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; or drawing or justifying conclusions) by</b></p> <p>[K] <b>S&amp;P-3</b> describing information from real graphs or pictographs (M6.1.2)</p>	<p><b>The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; or drawing or justifying conclusions) by</b></p> <p>[1] <b>S&amp;P-4</b> describing information from simple charts/graphs (M6.1.2)</p>	<p><b>The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; or drawing or justifying conclusions) by</b></p> <p>[2] <b>S&amp;P-3</b> describing data from a variety of graphs (e.g., newspapers, magazines, texts, computers, and other sources) (M6.1.2)</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>

## Math Performance Standards (Grade Level Expectations) Grades K-2

<b>Probability</b>			
<b>Kindergarten</b>	<b>Grade 1</b>	<b>Grade 2</b>	<b>Grade 3</b>
<p><b>The student demonstrates a conceptual understanding of probability and counting techniques by</b></p> <p>[K] <b>S&amp;P-4</b> making simple predictions using events or repeated observations (M6.1.4)</p>	<p><b>The student demonstrates a conceptual understanding of probability and counting techniques by</b></p> <p>[1] <b>S&amp;P-5</b> predicting, interpreting, and comparing data using events or repeated observations (M6.1.4)</p>	<p><b>The student demonstrates a conceptual understanding of probability and counting techniques by</b></p> <p>[2] <b>S&amp;P-4</b> predicting, interpreting, and comparing data using events or repeated observations* (M6.1.4)</p> <p>[2] <b>S&amp;P-5</b> recognizing the difference between chance and certainty (M6.1.4)</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>

\*Assumes an increasing level of mathematical skill applications

## Math Performance Standards (Grade Level Expectations) Grades K-2

### Content Standards B, C, D, and E: Process skills and abilities

Applying conceptual knowledge and skills as designated in all strands of Content Standard A by problem solving, communicating, reasoning, and making connections

**Problem-Solving Performance Standards that apply to grades K-3:** **M7.1.1** Formulate problems from practical and mathematical activities. **M7.1.2** Develop and apply strategies including guess and check, modeling and acting out, drawings, and extending patterns to solve a variety of problems. **M7.1.3** Predict an answer before solving a problem and compare results to check for reasonableness.

**Problem Solving:** Understand and be able to select and use a variety of problem-solving strategies

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates an ability to problem solve by</b></p> <p>[K] <b>PS-1</b> solving simple problems using concrete objects (M7.1.2)</p>	<p><b>The student demonstrates an ability to problem solve by</b></p> <p>[1] <b>PS-1</b> creating and solving simple problems using a variety of strategies (M7.1.1 &amp; M7.1.2)</p>	<p><b>The student demonstrates an ability to problem solve by</b></p> <p>[2] <b>PS-1</b> creating and solving a variety of problems using appropriate strategies (M7.1.1 &amp; M7.1.2)</p> <p>[2] <b>PS-2</b> choosing appropriate operations to solve a given problem (M7.1.2)</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>

**Communication Performance Standards that apply to grades K-3:** **M8.1.1** Translate problems from everyday language into math language and symbols. **M8.1.2** Use manipulatives, models, pictures, and language to represent and communicate mathematical ideas. **M8.1.3** Use everyday language to explain thinking about problem solving strategies and solutions to problems.

**Communication:** Form and use appropriate methods to define and explain mathematical relationships

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student communicates his or her mathematical thinking by</b></p> <p>[K] <b>PS-2</b> telling how objects were used to solve simple problems (M8.1.2)</p>	<p><b>The student communicates his or her mathematical thinking by</b></p> <p>[1] <b>PS-2</b> translating problems from everyday language into math language and symbols (+, -, =) (M8.1.1)</p> <p>[1] <b>PS-3</b> using everyday language to explain thinking about problem solving strategies and solutions to problems (M8.1.3)</p>	<p><b>The student communicates his or her mathematical thinking by</b></p> <p>[2] <b>PS-3</b> translating problems from everyday language into math language and symbols (+, -, =, &lt;, &gt;) (M8.1.1)</p> <p>[2] <b>PS-4</b> using everyday language to explain thinking about problem solving strategies and solutions to problems * (M8.1.3)</p> <p>[2] <b>PS-5</b> using manipulatives, models, pictures, and language to represent and communicate mathematical ideas (M8.1.2)</p>	<p><b>The student communicates his or her mathematical thinking by</b></p> <p>[3] <b>PS-2</b> 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)</p>

\*Assumes an increasing level of mathematical skill applications

**Math Performance Standards  
(Grade Level Expectations) Grades K-2**

**Reasoning Performance Standards that apply to grades K-3:** **M9.1.1** Draw conclusions about mathematical problems. **M9.1.2** Find examples that support or refute mathematical statements. **M9.1.3** Explain why a prediction, estimation, or solution is reasonable.

**Reasoning:** Use logic and reason to solve mathematical problems

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student demonstrates an ability to use logic and reason by</b></p> <p>[K] <b>PS-3</b> explaining what makes sense (M9.1.3)</p> <p>[K] <b>PS-4</b> drawing pictures that support simple mathematical statements (M9.1.2)</p>	<p><b>The student demonstrates an ability to use logic and reason by</b></p> <p>[1] <b>PS-4</b> explaining why a prediction or solution is reasonable (M9.1.3)</p> <p>[1] <b>PS-5</b> drawing pictures that support mathematical statements (M9.1.2)</p>	<p><b>The student demonstrates an ability to use logic and reason by</b></p> <p>[2] <b>PS-6</b> explaining why a prediction, estimation, or solution is reasonable (M9.1.3)</p> <p>[2] <b>PS-7</b> drawing pictures that support or refute mathematical statements (M9.1.2)</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>

**Connections Performance Standards that apply to grades K-3:** **M10.1.1** Apply mathematical skills and processes to literature. **M10.1.2** Apply mathematical skills and processes to situations with self and family.

**Connections:** Apply mathematical concepts and processes to situations within and outside of school.

Kindergarten	Grade 1	Grade 2	Grade 3
<p><b>The student understands and applies mathematical skills and processes across the content strands by</b></p> <p>[K] <b>PS-5</b> using real world context (i.e., self, friends, and family) (M10.1.2)</p>	<p><b>The student understands and applies mathematical skills and processes across the content strands by</b></p> <p>[1] <b>PS-6</b> using real world context (i.e., self, friends, and family)* (M10.1.2)</p>	<p><b>The student understands and applies mathematical skills and processes across the content strands by</b></p> <p>[2] <b>PS-8</b> using real world context (e.g., self, friends, and family)* (M10.1.2)</p>	<p><b>The student understands and applies mathematical skills and processes across the content strands by</b></p> <p>[3] <b>PS-5</b> using real-world contexts such as literature, self, and family (M10.1.1. &amp; M10.1.2)</p>

\*Assumes an increasing level of mathematical skill applications