

New York State Next Generation Mathematics Learning Standards

Grade 3 Crosswalk

Operations and Algebraic Thinking

Cluster	NYS P-12 CCLS	NYS Next Generation Learning Standard
Represent and solve problem		



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<p><b>Solve problems involving the four operations, and identify and extend patterns in arithmetic.</b></p>	<p><b>3.OA.8</b> Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><i>Note:</i> This standard is limited to problems posed with whole numbers and having whole-number answers; <del>students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order.</del></p>	<p><b>NY-3.OA.8</b> Solve two-step word problems <b>posed with whole numbers and having whole-number answers</b> using the four operations.</p> <p><b>NY-3.OA.8a</b> Represent these problems using <b>equations or expressions</b> with a letter standing for the unknown quantity.</p> <p><b>NY-3.OA.8b</b> Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><b>Note:</b> Two-step problems need not be represented by a single expression or equation.</p>
	<p><b>3.OA.9</b> Identify arithmetic patterns (including patterns in the addition table or multiplication table), and <del>explain them using properties of operations.</del> <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i></p>	<p><b>NY-3.OA.9 Identify and extend arithmetic patterns</b> (including patterns in the addition table or multiplication table).</p>



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Number and Operations - Fractions

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<p><b>Develop understanding of fractions as numbers.</b></p>	<p><b>3.NF.1</b> Understand a fraction <math>1/b</math> as the quantity formed by 1 part when <math>a</math> whole is partitioned into <math>b</math> equal parts; understand a fraction <math>a/b</math> as the quantity formed by <math>a</math> parts of size <math>1/b</math>.</p>	<p><b>NY-3.NF.1</b> Understand a <b>unit fraction</b>, <math>\frac{1}{b}</math>, is the quantity formed by 1 part when a whole is partitioned into <math>b</math> equal parts.</p> <p>Understand a fraction <math>\frac{a}{b}</math> as the quantity formed by <math>a</math> parts of size <math>\frac{1}{b}</math>.</p> <p><b>Note:</b> Fractions are limited to those with denominators 2, 3, 4, 6, and 8.</p>

**3.NF.2** Understand a fraction as a number on the number line; represent fractions on a number line ~~diagram~~.

- a. Represent a fraction  $1/b$  on a number line ~~diagram~~ by defining the interval from 0 to 1 as the whole and partitioning it into  $b$  equal parts. Recognize that each part has size  $1/b$  and that the endpoint of the part based at 0 locates the number  $1/b$  on the number line.

Represent a fraction  $a/b$  on a number line ~~diagram~~ by marking off

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<p><b>Develop understanding of fractions as numbers.</b></p>	<p><b>3.NF.3</b> Explain equivalence of fractions <del>in special cases</del>, and compare fractions by reasoning about their size.</p> <ul style="list-style-type: none"> <li>a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.</li> <li>b. Recognize and generate simple equivalent fractions, e.g., <math>1/2 = 2/4</math>, <math>4/6 = 2/3</math>. Explain why the fractions are equivalent, e.g., <del>by</del> using a visual fraction model.</li> <li>c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.</li> </ul>	

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Measurement and Data

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<p><b>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</b></p>	<p><b>3.MD.1</b> Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line <del>diagram</del>.</p>	<p><b>NY-3.MD.1</b> Tell and write time to the nearest minute and measure time intervals in minutes. Solve <b>one-step</b> word problems involving addition and subtraction of time intervals in minutes. e.g., representing the problem on a number line or <b>other visual model</b>.</p> <p><b>Note:</b> This includes one-step problems that cross into a new hour.</p>

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<p><b>Represent and interpret data.</b></p>	<p><b>3.MD.3</b> Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-<math>\times</math>gr "öj qy "o cp{"o qtgö"cpf "öj qy "o cp{"rguö"r tqdngo u" using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i></p>	<p><b>NY-3.MD.3</b> Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-<math>\times</math>gr "öj qy "o cp{" o qtgö"cpf "öj qy "o cp{"rguö"r tqdngo u"vulpi " information presented in a scaled picture graph or a scaled bar graph.</p> <p>e.g., Draw a bar graph in which each square in the bar graph might represent 5 pets.</p>
	<p><b>3.MD.4</b> Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate unitsô whole numbers, halves, or quarters.</p>	<p><b>NY-3.MD.4</b> Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot where the horizontal scale is marked off in appropriate unitsô whole numbers, halves, or quarters.</p>
<p><b>Geometric measurement: understand concepts of area and relate area to multiplication and addition.</b></p>	<p><b>3.MD.5</b> Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>a. C"us wctg'y kj "ukf g'rgpi y "3"wpk.'ecngf "öc"wpk' us wctg.ö"ku'uckf "q"j cxg"öqpg"us wctg'wpkö"qh'ctgc."cpf " can be used to measure area.</p> <p>A plane figure which can be covered without gaps or overlaps by <math>n</math> unit squares is said to have an area of <math>n</math> square units.</p>	<p><b>NY-3.MD.5</b> Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p><b>NY-3.MD.5a</b> Recognize a square with side length 1 wpk.'ecngf "öc"wpk'us wctg.ö"ku'uckf "q"j cxg"öqpg" us wctg'wpkö"qh'ctgc."cpf "ecp"dg'wugf "q"o gcuwtg'ctgc0</p> <p><b>NY-3.MD.5b</b> Recognize a plane figure which can be covered without gaps or overlaps by <math>n</math> unit squares is said to have an area of <math>n</math> square units.</p>

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<p><b>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</b></p>	<p><b>3.MD.6</b> Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).</p> <p><b>3.MD.7</b> Relate area to the operations of multiplication and addition.</p> <p>a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</p> <p>b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</p> <p>c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths <math>a</math> and <math>b + c</math> is the sum of <math>a \times b</math> and <math>a \times c</math>. Use area models to represent the distributive property in mathematical reasoning.</p> <p>d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.</p>	<p><b>NY-3.MD.6</b> Measure areas by counting unit squares.</p> <p><u>Note:</u> Unit squares include square cm, square m, square in., square ft., and improvised units.</p> <p><del>NY-3.MD.7</del> <b>NY-3.MD.7a</b> Relate area to the operations of multiplication and addition.</p> <p><b>NY-3.MD.7a</b> Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</p>

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<p><b>Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</b></p>	<p><b>3.MD.8</b> Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.</p>	<p><b>NY-3.MD.8a</b> Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths or finding one unknown side length given the perimeter and other side lengths.</p> <p><b>NY-3.MD.8b</b> Identify rectangles with the same perimeter and different areas or with the same area and different perimeters.</p>

