



Correlation between *McGraw-Hill Ryerson's  
Mathematics 8: Making Connections*  
and the Ontario Curriculum  
Grades 1-8, Mathematics, 2005 REVISED

**Number Sense and Numeration**

Overall Expectations	Chapter/Section
<i>8m1</i> represent, compare, and order equivalent representations of numbers, including those involving positive exponents;	Get Ready for Grade 8; Throughout chapter 7
<i>8m2</i> solve problems involving whole numbers, decimal numbers, fractions, and integers, using a variety of computational strategies;	Throughout chapters 1,2, 3,5, 7, 8, 11
<i>8m3</i> solve problems by using proportional reasoning in a variety of meaningful contexts.	Throughout chapter 5
Specific Expectations	Chapter/Section
<b>Quantity Relationships</b>	7.1
<i>8m4</i> express repeated multiplication using exponential notations;	
<i>8m5</i> represent whole numbers in expanded form using powers of ten;	7.3 Task 7/8
<i>8m6</i> represent, compare, and order rational numbers (i.e., positive and negative fractions and decimals to thousandths);	Get Ready Chapter 3 11.1, 11.2
<i>8m7</i> translate between equivalent forms of a number (i.e., decimals, fractions, percents);	Get Ready Chapter 5
<i>8m8</i> determine common factors and common multiples using the prime factorization of numbers;	3.1
<b>Operations Sense</b>	throughout Ch. 1, 2
<i>8m9</i> solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies;	
<i>8m10</i> solve problems involving percents expressed to one decimal place and whole-number percents greater than 100;	5.3, 5.4, 5.5
<i>8m11</i> use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution;	Throughout chapters 1, 2, 3, 5, 7, 11
<i>8m12</i> represent the multiplication and division of fractions, using a variety of tools and strategies;	3.2, 3.3
<i>8m13</i> solve problems involving addition, subtraction, multiplication, and division with simple fractions;	Throughout chapter 3
<i>8m14</i> represent the multiplication and division of integers, using a variety of tools;	11.3, 11.4

<i>8m15</i> solve problems involving operations with integers, using a variety of tools;	Throughout chapter 11
<i>8m16</i> evaluate expressions that involve integers, including expressions that contain brackets and exponents, using order of operations;	11.5
<i>8m17</i> multiply and divide decimal numbers by various powers of ten;	7.3
<i>8m18</i> estimate, and verify using a calculator, the positive square roots of whole numbers, and distinguish between whole numbers that have whole-number square roots (i.e., perfect square numbers) and those that do not;	2.2, 2.4 Task 1/2
<b>Proportional Relationships</b> <i>8m19</i> identify and describe real-life situations involving two quantities that are directly proportional;	Throughout chapter 5
<i>8m20</i> solve problems involving proportions, using concrete materials, drawings, and variables;	5.1, 5.2
<i>8m21</i> solve problems involving percent that arise from real-life contexts;	5.3, 5.4, 5.5 Task 5/6
<i>8m22</i> solve problems involving rates;	5.2

## Measurement

Overall Expectations	Chapter/Section
<i>8m23</i> research, describe, and report on applications of volume and capacity measurement;	Throughout chapter 8
<i>8m24</i> determine the relationships among units and measurable attributes, including the area of a circle and the volume of a cylinder.	1.3
Specific Expectations	Chapter/Section
<b>Attributes, Units, and Measurement Sense</b> <i>8m25</i> research, describe, and report on applications of volume and capacity measurement;	Throughout chapter 8
<b>Measurement Relationships</b> <i>8m26</i> solve problems that require conversions involving metric units of area, volume, and capacity (i.e., square centimetres and square metres; cubic centimetres and cubic metres; millilitres and cubic centimetres);	Throughout chapter 8
<i>8m27</i> measure the circumference, radius, and diameter of circular objects, using concrete materials;	1.1, 1.2 Task 1/2
<i>8m28</i> determine, through investigation using a variety of tools and strategies, the relationships for calculating the circumference and the area of a circle, and generalize to develop the formulas [i.e., Circumference of a circle = $\pi \times$ diameter; Area of a circle = $\pi \times$ (radius) <sup>2</sup> ];	1.1-1.3
<i>8m29</i> solve problems involving the estimation and calculation of the circumference and the area of a circle;	1.2, 1.3

<i>8m30</i> determine, through investigation using a variety of tools and strategies (e.g., generalizing from the volume relationship for right prisms, and verifying using the capacity of thin-walled cylindrical containers), the relationship between the area of the base and height and the volume of a cylinder, and generalize to develop the formula (i.e., Volume = area of base x height);	8.4
<i>8m31</i> determine, through investigation using concrete materials, the surface area of a cylinder;	
<i>8m32</i> solve problems involving the surface area and the volume of cylinders, using a variety of strategies;	

## Geometry and Spatial Sense

Overall Expectations	Chapter/Section
<i>8m33</i> demonstrate an understanding of the geometric properties of quadrilaterals and circles and the applications of geometric properties in the real world;	Throughout chapter 1
<i>8m34</i> develop geometric relationships involving lines, triangles, and polyhedra, and solve problems involving lines and triangles;	Throughout chapters 8, 13
<i>8m35</i> represent transformations using the Cartesian coordinate plane, and make connections between transformations and the real world.	
Specific Expectations	Chapter/Section
<b>Geometric Properties</b>	
<i>8m36</i> sort and classify quadrilaterals by geometric properties, including those based on diagonals, through investigation using a variety of tools;	
<i>8m37</i> construct a circle, given its centre and radius, or its centre and a point on the circle, or three points on the circle;	1.5
<i>8m38</i> investigate and describe applications of geometric properties in the real world.	Throughout chapters 1, 8, 13
<b>Geometric Relationships</b>	
<i>8m39</i> determine, through investigation using a variety of tools (e.g., dynamic geometry software, concrete materials, geoboard), relationships among area, perimeter, corresponding side lengths, and corresponding angles of similar shapes;	
<i>8m40</i> determine, through investigation using a variety of tools and strategies the angle relationships for intersecting lines and for parallel lines and transversals, and the sum of the angles of a triangle;	13.2, 13.3
<i>8m41</i> solve angle-relationship problems involving triangles, intersecting lines,, and parallel lines and transversals;	13.1 – 13.4
<i>8m42</i> determine the Pythagorean relationship, through investigation using a variety of tools and strategies;	2.1 Use Technology pg. 56
<i>8m43</i> solve problems involving right triangles geometrically, using the Pythagorean relationship;	2.3, 2.4

<i>8m44</i> determine, through investigation using concrete materials, the relationship between the numbers of faces, edges, and vertices of a polyhedron (i.e., number of faces + number of vertices = number of edges + 2);	8.2
<i>8m45</i> graph the image of a point, or set of points, on the Cartesian coordinate plane after applying a transformation to the original point(s) (i.e., translation; reflection in the x-axis, the y-axis, or the angle bisector of the axes that passes through the first and third quadrants; rotation of 90°, 180°, or 270° about the origin);	
<i>8m46</i> identify, through investigation, real-world movements that are translations, reflections, and rotations.	

## Patterning and Algebra

Overall Expectations	Chapter/Section
<i>7m47</i> represent linear growing patterns (where the terms are whole numbers) using graphs, algebraic expressions, and equations;	Throughout chapter 6
<i>7m48</i> model linear relationships graphically and algebraically, and solve and verify algebraic equations, using a variety of strategies, including inspection, guess and check, and using a “balance” model.	Throughout chapter 12
Specific Expectations	Chapter/Section
<b>Patterns and Relationships</b>	6.2
<i>8m49</i> represent, through investigation with concrete materials, the general term of a linear pattern, using one or more algebraic expressions;	
<i>8m50</i> represent linear patterns graphically (i.e., make a table of values that shows the term number and the term, and plot the coordinates on a graph), using a variety of tools;	6.3
<i>8m51</i> determine a term, given its term number, in a linear pattern that is represented by a graph or an algebraic equation;	6.2, 6.3
<b>Variables, Expressions, and Equations</b>	Throughout chapters 6, 12
<i>8m52</i> describe different ways in which algebra can be used in real-life situations;	
<i>8m53</i> model linear relationships using tables of values, graphs, and equations, through investigation using a variety of tools;	6.2 – 6.4
<i>8m54</i> translate statements describing mathematical relationships into algebraic expressions and equations;	Throughout chapters 6, 12
<i>8m55</i> evaluate algebraic expressions with up to three terms, by substituting fractions, decimals, and integers for the variables;	12.1 – 12.3 8.3 – 8.5
<i>8m56</i> make connections between solving equations and determining the term number in a pattern, using the general term;	12.1 – 12.3
<i>8m57</i> solve and verify linear equations involving a one-variable term and having solutions that are integers, by using inspection, guess and check, and a “balance” model.	12.1, 12.2

## Data Management and Probability

Overall Expectations	Chapter/Section
<i>8m58</i> collect and organize categorical, discrete, or continuous primary data and secondary data and display the data using charts and graphs, including frequency tables with intervals, histograms, and scatter plots;	Throughout chapter 9 9.1 Task 9/10
<i>8m58</i> apply a variety of data management tools and strategies to make convincing arguments about data;	Throughout chapters 9, 10
<i>8m60</i> use probability models to make predictions about real-life events.	Throughout chapter 4
Specific Expectations	Chapter/Section
<b>Collections and Organization of Data</b>	
<i>8m61</i> collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements;	9.1
<i>8m62</i> organize into intervals a set of data that is spread over a broad range;	9.2
<i>8m63</i> collect and organize categorical, discrete, or continuous primary data and secondary data, and display the data in charts, tables, and graphs (including histograms and scatter plots) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools;	9.1 – 9.5
<i>8m64</i> select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph (i.e., from types of graphs already studied, including histograms and scatter plots);	9.5 Task chapter 9/10
<i>8m65</i> explain the relationship between a census, a representative sample, sample size, and a population;	9.1
<b>Data Relationships</b>	
<i>8m66</i> read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including frequency tables with intervals, histograms, and scatter plots);	9.2 – 9.5 10.1, 10.4
<i>8m67</i> determine, through investigation, the appropriate measure of central tendency (i.e., mean, median, or mode) needed to compare sets of data ;	10.2
<i>8m68</i> demonstrate an understanding of the appropriate uses of bar graphs and histograms by comparing their characteristics;	9.1 – 9.3
<i>8m69</i> compare two attributes or characteristics, using a scatter plot, and determine whether or not the scatter plot suggests a relationship;	
<i>8m70</i> identify and describe trends, based on the rate of change of data from tables and graphs, using informal language;	6.3 10.1 Task 9/10

<i>8m71</i> make inferences and convincing arguments that are based on the analysis of charts, tables, and graphs;	9.1, 9.2, 9.5 10.1, 10.4 Task 9/10
<i>8m72</i> compare two attributes or characteristics, using a variety of data management tools and strategies (i.e., pose a relevant question, then design an experiment or survey, collect and analyse the data, and draw conclusions).	
<b>Probability</b> <i>8m73</i> compare, through investigation, the theoretical probability of an event (i.e., the ratio of the number of ways a favourable outcome can occur compared to the total number of possible outcomes) with experimental probability, and explain why they might differ;	4.1, 4.2, 4.4
<i>8m74</i> determine, through investigation, the tendency of experimental probability to approach theoretical probability as the number of trials in an experiment increases, using class-generated data and technology-based simulation models;	4.4
<i>8m75</i> identify the complementary event for a given event, and calculate the theoretical probability that a given event will not occur;	