

# Aligning *Equals Math* with the Alberta Program of Studies

## Grade 7



Alberta Program of Studies	Related activities from <i>Equals Math</i> resources
<b>Number</b>	
<b>Representing</b>	
<p>N1. Determine and explain why a number is divisible by 2, 3, 4, 5, 6, 8, 9 or 10, and why a number cannot be divided by 0.</p>	<p><i>Emerging:</i>                      11.A.5 solve multiplication problems with factors 6–9 (R)                      11.B.1 write a multiplication equation (R)                      11.B.2 solve multiplication problems with factor of 10 (R)                      11.B.3 multiply with 10 and 100 (R)                      11.B.5 solve two-digit multiplication problem with calculator (R)                      11.C.4 solve division problems with corresponding factors 6–9 (R)                      11.D.1 write a division problem (R)                      11.D.2 solve division problems with divisor of 10 (R)                      11.D.4 divide by 10s and 100s (R)                      11.D.6 choose multiplication and division to solve word problem (R)</p> <p><i>Introductory:</i>                      11.D.7 identify multiples and factors</p> <p><i>Basic:</i>                      No related activities identified.</p>
<p>N4. Demonstrate an understanding of the relationship between positive terminating decimals and positive fractions and between positive repeating decimals and positive fractions.</p>	<p><i>Emerging:</i>                      12.A.1 sort equal fraction pieces (R)                      12.A.2 show half of object and array (R)                      12.A.3 assemble and name matching fraction pieces (R)                      12.A.4 identify 2 ways to make a square into fourths (R)                      12.A.5 define meaning of numerator and denominator (R)                      12.A.6 write fraction name (R)                      12.B.1 identify fractions with numerator greater than 1 (R)                      12.B.2 match equivalent fractions with models (R)                      12.C.1 identify fractions with common denominator (R)</p> <p><i>Introductory:</i>                      12.B.3 identify fractions of a set (R)</p>

	<p>12.B.4 order common fractions (R)  12.B.5 compare common fractions (R)  12.B.6 identify fractions of linear measurement (R)  12.D.3 read decimals to tenths place (R)  12.D.4 read decimals in money terms (R)  12.D.6 match decimals and fractions and relate time and money (R)</p> <p><i>Basic:</i>  No related activities identified.</p>
<p>N7. Compare and order positive fractions, positive decimals (to thousandths) and whole numbers by using:</p> <ul style="list-style-type: none"> <li>• benchmarks</li> <li>• place value</li> <li>• equivalent fractions and/or decimals.</li> </ul>	<p><i>Emerging:</i>  12.A.1 sort equal fraction pieces (R)  12.A.2 show half of object and array (R)  12.A.3 assemble and name matching fraction pieces (R)  12.A.4 identify 2 ways to make a square into fourths (R)  12.A.5 define meaning of numerator and denominator (R)  12.A.6 write fraction name (R)  12.B.1 identify fractions with numerator greater than 1 (R)  12.B.2 match equivalent fractions with models (R)  12.C.1 identify fractions with common denominator (R)</p> <p><i>Introductory:</i>  12.B.3 identify fractions of a set (R)  12.B.4 order common fractions (R)  12.B.5 compare common fractions (R)  12.B.6 identify fractions of linear measurement (R)  12.D.7 match fractions to percentages (R) (R)  12.D.3 read decimals to tenths place (R)  12.D.4 read decimals in money terms (R)  12.D.5 add and subtract decimals in money terms (R)  12.D.6 match decimals and fractions and relate time and money (R)</p> <p><i>Basic:</i>  No related activities identified.</p>

Alberta Program of Studies	Related activities from <i>Equals Math</i> resources
<b>Number (continued)</b>	
<b>Adding, Subtracting, Multiplying and Dividing</b>	
<p>N2. Demonstrate an understanding of the addition, subtraction, multiplication and division of decimals to solve problems (for more than 1-digit divisors or 2-digit multipliers, the use of technology is expected).</p>	<p><i>Emerging:</i>            4.C.2 write addition and subtraction equations            7.B.5 choose correct operation to solve simple word problem            8.A.7 use a calculator to add and subtract 2- and 3-digit numbers            8.A.9 add and subtract 3-digit numbers, no re-grouping            8.B.7 add and subtract 3-digit numbers, with re-grouping            8.C.5 use a calculator to add and subtract 4-digit numbers</p> <p><i>Introductory:</i>            11.A.1 demonstrate multiplication with repeated sets            11.A.2 use manipulatives to solve multiplication problems            11.A.3 use 10:1 or 2:1 relationships to solve a multiplication problem            11.A.4 skip count to solve multiplication problems            11.B.4 use multiplication to solve word problem with repeated addition problem            11.B.5 solve 2-digit multiplication problem with calculator            11.B.6 demonstrate commutative property of multiplication            11.C.1 identify sets that can be divided into equal groups            11.C.2 demonstrate division with array and grouping            11.C.3 use manipulatives to solve division problems            11.C.5 use inverse relation to solve division problems            11.D.3 use division to solve word problem with equal sets            11.D.6 choose multiplication and division to solve word problem            12.D.5 add and subtract decimals in money terms</p> <p><i>Basic:</i>            No related activities identified.</p>
<p>N3. Solve problems involving percents from 1% to 100%.</p>	<p><i>Emerging:</i>            No related activities identified.</p> <p><i>Introductory:</i></p>

	<p>12.A.1 sort equal fraction pieces (R)  12.A.2 show half of object and array (R)  12.A.3 assemble and name matching fraction pieces (R)  12.A.4 identify 2 ways to make a square into fourths (R)  12.A.5 define meaning of numerator and denominator (R)  12.A.6 write fraction name (R)  12.B.1 identify fractions with numerator greater than 1 (R)  12.B.2 match equivalent fractions with models (R)  12.B.3 identify fractions of a set (R)  12.B.4 order common fractions (R)  12.B.5 compare common fractions (R)  12.B.6 identify fractions of linear measurement (R)  12.C.1 identify fractions with common denominator (R)  12.D.3 read decimals to tenths place (R)  12.D.4 read decimals in money terms (R)  12.D.5 add and subtract decimals in money terms (R)  12.D.7 match fractions to percentages (R)</p> <p><i>Basic:</i>  No related activities identified.</p>
<p>N5. Demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators, concretely, pictorially and symbolically (limited to positive sums and differences).</p>	<p><i>Emerging:</i>  4.C.2 write addition and subtraction equations (R)  7.B.5 choose correct operation to solve simple word problem (R)  8.A.7 use a calculator to add and subtract 2- and 3-digit numbers (R)  8.A.9 add and subtract 3-digit numbers, no re-grouping (R)  8.B.7 add and subtract 3-digit numbers, with re-grouping (R)  8.C.5 use a calculator to add and subtract 4-digit numbers (R)</p> <p><i>Introductory:</i>  12.B.3 identify fractions of a set (R)  12.B.4 order common fractions (R)  12.B.5 compare common fractions (R)  12.B.6 identify fractions of linear measurement (R)  12.C.1 identify fractions with common denominator  12.C.4 identify mixed numbers in a recipe  12.D.7 match fractions to percentages (R)</p> <p><i>Basic:</i>  12.C.2 add and subtract fractions with common</p>

	<p>denominators  12.C.3 add fractions to a total of 1  12.C.5 solve addition problem with models that result in mixed number</p>
<p>N6. Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially and symbolically.</p>	<p><i>Emerging:</i>  6.B.6 demonstrate understanding of place value to 50  7.D.3 demonstrate understanding of place value from 51–99  8.A.1 demonstrate understanding of place value to 100 (R)  8.C.1 demonstrate understanding of place value to 1000</p> <p><i>Introductory:</i>  4.C.2 write addition and subtraction equations (R)  7.B.5 choose correct operation to solve simple word problem (R)  8.A.7 use a calculator to add and subtract 2- and 3-digit numbers (R)  8.A.9 add and subtract 3-digit numbers, no regrouping (R)  8.B.7 add and subtract 3-digit numbers, with regrouping (R)  8.C.5 use a calculator to add and subtract 4-digit numbers (R)</p> <p><i>Basic:</i>  No related activities identified.</p>

## Grade 7

Alberta Program of Studies	Related activities from <i>Equals Math</i> resources
<b>Patterns and Relations</b>	
<b>Graphs and Tables</b>	
PR1. Demonstrate an understanding of oral and written patterns and their equivalent linear relations.	<p><i>Emerging:</i> 10.C.5 extend number pattern with constant increment (R) 10.C.6 use a table representing constant rate of change (R) 10.C.7 describe number pattern in table with constant rate of change (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>
PR2. Create a table of values from a linear relation, graph the table of values, and analyze the graph to draw conclusions and solve problems.	<p><i>Emerging:</i> 10.C.5 extend number pattern with constant increment (R) 10.C.6 use a table representing constant rate of change (R) 10.C.7 describe number pattern in table with constant rate of change (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>
<b>Equations</b>	
PR3. Demonstrate an understanding of preservation of equality by: <ul style="list-style-type: none"> <li>• modelling preservation of equality, concretely, pictorially and symbolically</li> <li>• applying preservation of equality to solve equations.</li> </ul>	<p><i>Emerging:</i> 10.C.1 use notation for equivalent expression (R) 10.C.2 complete problem solving with missing addend (R) 10.C.3 solve addition equation with a variable (R) 10.C.4 identify equal and equivalent sets (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>
PR4. Explain the difference between an expression and an equation.	<p><i>Emerging:</i> 10.C.1 use notation for equivalent expression (R) 10.C.2 complete problem solving with missing addend (R) 10.C.3 solve addition equation with a variable (R)</p>

	<p>10.C.4 identify equal and equivalent sets (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>
<p>PR5. Evaluate an expression, given the value of the variable(s).</p>	<p><i>Emerging:</i> 10.C.1 use notation for equivalent expression (R) 10.C.2 complete problem solving with missing addend (R) 10.C.3 solve addition equation with a variable (R) 10.C.4 identify equal and equivalent sets (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>
<p>PR6. Model and solve, concretely, pictorially and symbolically, problems that can be represented by one-step linear equations of the form <math>x + a = b</math>, where <math>a</math> and <math>b</math> are integers.</p>	<p><i>Emerging:</i> 10.C.1 use notation for equivalent expression (R) 10.C.2 complete problem solving with missing addend (R) 10.C.3 solve addition equation with a variable (R) 10.C.4 identify equal and equivalent sets (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>
<p>PR7. Model and solve, concretely, pictorially and symbolically, problems that can be represented by linear equations of the form:</p> <ul style="list-style-type: none"> <li>• <math>ax + b = c</math></li> <li>• <math>ax = b</math></li> <li>• <math>x/a \square b</math>, <math>a \neq 0</math> where <math>a</math>, <math>b</math> and <math>c</math> are whole numbers.</li> </ul>	<p><i>Emerging:</i> 10.C.1 use notation for equivalent expression (R) 10.C.2 complete problem solving with missing addend (R) 10.C.3 solve addition equation with a variable (R) 10.C.4 identify equal and equivalent sets (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>

## Grade 7

Alberta Program of Studies	Related activities from <i>Equals Math</i> resources
<b>Shape and Space</b>	
<b>Circles</b>	
SS1. Demonstrate an understanding of circles by: <ul style="list-style-type: none"> <li>• describing the relationships among radius, diameter and circumference</li> <li>• relating circumference to pi</li> <li>• determining the sum of the central angles</li> <li>• constructing circles with a given radius or diameter</li> <li>• solving problems involving the radii, diameters and circumferences of circles.</li> </ul>	<i>Emerging:</i> 9.C.1 identify right angle (R) 11.E.1 measure perimeter (R)  <i>Introductory:</i> 11.E.2 measure area (R) 11.E.4 determine the volume of a box (R)  <i>Basic:</i> No related activities identified.
<b>Formula for Area</b>	
SS2. Develop and apply a formula for determining the area of: <ul style="list-style-type: none"> <li>• triangles</li> <li>• parallelograms</li> <li>• circles</li> </ul>	<i>Emerging:</i> 11.E.1 measure perimeter (R)  <i>Introductory:</i> 11.E.2 measure area (R) 11.E.4 determine the volume of a box (R)  <i>Basic:</i> No related activities identified.
<b>2-D Shapes</b>	
SS3. Perform geometric constructions, including: <ul style="list-style-type: none"> <li>• perpendicular line segments</li> <li>• parallel line segments</li> <li>• perpendicular bisectors</li> <li>• angle bisectors.</li> </ul>	<i>Emerging:</i> 9.A.4 identify length with lines and pictured ruler 9.A.5 measure line in centimeters 9.A.7 measure line in meters 9.C.1 identify right angle (R) 9.C.3 identify polygons and quadrilaterals 9.D.4 count sides and vertices on two-dimensional net  <i>Introductory:</i> No related activities identified.  <i>Basic:</i> No related activities identified.
<b>Transformations</b>	
SS4. Identify and plot points in the four quadrants of a Cartesian plane, using integral ordered pairs.	<i>Emerging:</i> No related activities identified.  <i>Introductory:</i> No related activities identified.  <i>Basic:</i>



	No related activities identified.
SS5. Perform and describe transformations (translations, rotations or reflections) of a 2-D shape in all four quadrants of a Cartesian plane (limited to integral number vertices).	<p><i>Emerging:</i> 9.B.3 predict and confirm results of transformations (R) 9.B.4 describe motion (s) to prove congruency (R)</p> <p><i>Introductory:</i> No related activities identified.</p> <p><i>Basic:</i> No related activities identified.</p>

## Grade 7

Alberta Program of Studies	Related Activities from Equals Math
<b>Statistics and Probability</b>	
<b>Circle Graphs</b>	
SP3. Construct, label and interpret circle graphs to solve problems.	<p><i>Emerging:</i>            3.D.6 interpret a bar graph by comparison            3.E.3 place data in simple bar graph with symbolic representation            3.E.4 compare amounts on bar graph with symbolic representation            3.E.5 use data from bar graph to solve simple problem            6.A.5 make a bar graph with categorical data            6.A.6 communicate conclusions drawn from bar graph</p> <p><i>Introductory:</i>            No related activities identified.</p> <p><i>Basic:</i>            No related activities identified.</p>
<b>Analyzing Data</b>	
SP1. Demonstrate an understanding of central tendency and range by: <ul style="list-style-type: none"> <li>• determining the measures of central tendency (mean, median, mode) and range</li> <li>• determining the most appropriate measures of central tendency to report findings.</li> </ul>	<p><i>Emerging:</i>            6.A.4 use categorical data to organize answers (R)</p> <p><i>Introductory:</i>            10.A.2 order numerical data (R)</p> <p><i>Basic:</i>            10.A.4 determine range(R)            10.A.5. determine median(R)            10.A.6. compare median of 2 data sets(R)            10.A.7 describe graph shape, including mode and least values(R)</p>
SP2. Determine the effect on the mean, median and mode when an outlier is included in a data set.	<p><i>Emerging:</i>            6.A.4 use categorical data to organize answers (R)</p> <p><i>Introductory:</i>            10.A.2 order numerical data (R)</p> <p><i>Basic:</i>            10.A.4 determine range(R)            10.A.5. determine median(R)            10.A.6. compare median of 2 data sets(R)            10.A.7 describe graph shape, including mode and least values(R)</p>
<b>Probability</b>	

<p>SP4. Express probabilities as ratios, fractions and percents.</p>	<p><i>Emerging:</i>  12.B.3 identify fractions of a set (R)  12.B.4 order common fractions (R)  12.B.5 compare common fractions (R)  12.B.6 identify fractions of linear measurement (R)</p> <p><i>Introductory:</i>  12.D.7 match fractions to percentages</p> <p><i>Basic:</i>  No related activities identified.</p>
<p>SP5. Identify the sample space (where the combined sample space has 36 or fewer elements) for a probability experiment involving two independent events.</p>	<p><i>Emerging:</i>  10.B.1 predict probability of outcomes (R)  10.B.2 describe outcome of experiment (R)  10.B.3 describe variable and result (R)</p> <p><i>Introductory:</i>  10.B.6 predict probability regarding change over time (R)  10.B.7 collect data from experiment (R)</p> <p><i>Basic:</i>  No related activities identified.</p>
<p>SP6. Conduct a probability experiment to compare the theoretical probability (determined using a tree diagram, table or other graphic organizer) and experimental probability of two independent events.</p>	<p><i>Emerging:</i>  10.B.1 predict probability of outcomes (R)  10.B.2 describe outcome of experiment (R)  10.B.3 describe variable and result (R)</p> <p><i>Introductory:</i>  10.B.6 predict probability regarding change over time (R)  10.B.7 collect data from experiment (R)</p> <p><i>Basic:</i>  No related activities identified.</p>