

# Mathematics for Elementary School

## Grade 5, One-Year Instructional Plan

1 <sup>st</sup> Trimester			
Month	Unit	# of periods	Instructional content
April (15)	<b>[Volume 1]</b> <b>1. Whole Numbers and Decimal Numbers</b> p. 4-11	5	<ul style="list-style-type: none"> <li><input type="radio"/> Whole numbers and decimal numbers in the decimal number system</li> <li><input checked="" type="radio"/> Position of decimal points and relative sizes of numbers that are 10 times, 100 times, <math>\frac{1}{10}</math>, <math>\frac{1}{100}</math>, as large as a decimal number.</li> <li><input type="radio"/> Method for estimating products and quotients</li> </ul>
	<b>2. Volume</b> p. 12-24	11	<ul style="list-style-type: none"> <li><input checked="" type="radio"/> Concept of volume [volume]</li> <li><input checked="" type="radio"/> Unit of volume: cubic centimeter and cubic meter [<math>cm^3</math>, <math>m^3</math>]</li> <li><input checked="" type="radio"/> Formulae for volume of rectangular prisms and cubes</li> <li><input type="radio"/> Concept of capacity and meaning of inside measure [inside measure, capacity]</li> <li><input type="radio"/> Estimating capacity by using rough sketches</li> </ul>
May (15)	☆ <b>Review 1</b> p. 25	(1)	<ul style="list-style-type: none"> <li><input type="radio"/> Reviewing previously learned concepts</li> </ul>
	<b>3. Multiplication of Decimal Numbers</b> p. 26-37	11	<ul style="list-style-type: none"> <li><input checked="" type="radio"/> Meaning of multiplying by a decimal number</li> <li><input checked="" type="radio"/> How to think about multiplication of decimal numbers and their algorithm</li> <li><input type="radio"/> A product becomes smaller than multiplicand when the multiplicand is multiplied by a proper decimal number (&lt;1).</li> <li><input type="radio"/> Understanding how whole number calculations ideas can be used for calculations involving decimal numbers</li> <li><input checked="" type="radio"/> Meaning of "how many times as much as" when multiplying by a decimal number</li> <li><input checked="" type="radio"/> Meaning of decimal calculation involving usage of the second relationship of ratio (<math>A = B \times p</math>). If B is the base quantity, A is the quantity to be compared, and p is the value of the ratio. The quantity to be compared can be found by multiplying the base quantity by the value of the ratio expressed as a decimal number.</li> </ul>
June (20)	<b>4. Division of Decimal Numbers</b> p. 38-49	11	<ul style="list-style-type: none"> <li><input checked="" type="radio"/> Meaning of dividing by a decimal number</li> <li><input checked="" type="radio"/> How to think about division of decimal numbers and their algorithms</li> <li><input type="radio"/> A quotient becomes larger than dividend when the dividend is divided by a proper decimal number (&lt;1).</li> <li><input type="radio"/> Place value of the remainder in calculations involving division of decimal numbers</li> <li><input checked="" type="radio"/> Meaning of decimal calculation involving the first relationship of ratio (<math>p = A \div B</math>) and the third relationship of ratio (<math>B = A \div p</math>).</li> </ul>
	☆ <b>What kind of calculation is that going to be?</b> p. 50	(1)	<ul style="list-style-type: none"> <li><input type="radio"/> Decision-making about which calculation operation to use, multiplication or division, involving decimal numbers</li> </ul>
	☆ <b>Review 2</b> p. 51	(1)	<ul style="list-style-type: none"> <li><input type="radio"/> Reviewing previously learned concepts</li> </ul>
	<b>5. Congruent Shapes</b> p. 52-63	11	<ul style="list-style-type: none"> <li><input checked="" type="radio"/> Meaning of congruence [congruent, corresponding]</li> <li><input checked="" type="radio"/> First step in understanding the conditions for determining congruent triangles</li> </ul>
July (10)			<ul style="list-style-type: none"> <li><input checked="" type="radio"/> Sum of the interior angles of a triangle is <math>180^\circ</math></li> </ul>

			○ Examination of the sum of interior angles of polygons [polygon]
	☆ <b>Tiling</b> p. 64-65	(1)	○ Understanding that one kind of congruent quadrilateral can tile a plane with no overlapping or gaps and creating a design using this characteristic
	☆ <b>Making Shapes with Sticks</b> p. 66	(1)	○ Problem-solving using tables to find the constant relationship of quantities
	☆ <b>Review 3</b> p. 67	(1)	○ Retaining and reinforcing concepts learned in the first trimester
<b>Standard # of periods in 1<sup>st</sup> trimester: 60 periods</b>		<b>49 periods</b> (Adjustable periods (☆): 6 periods) (Optional periods: 5 periods) <b>Total of 11 periods 6 + 5</b>	

2 <sup>nd</sup> Trimester			
Month	Unit	# of periods	Instructional content
Sept. (20)	<b>6. Area of Quadrilaterals and Triangles</b> p. 68-83	<b>15</b>	<ul style="list-style-type: none"> <li><input type="radio"/> How to find the area of a parallelogram and the formula [base, height]</li> <li><input type="radio"/> How to find the area of a triangle and the formula</li> <li><input type="radio"/> How to find the area of a trapezoid and the formula [top base, bottom base]</li> <li><input type="radio"/> Finding the area of a polygon by dividing it into triangles</li> <li><input type="radio"/> How to find the area of a rhombus</li> <li><input type="radio"/> Estimating the area of complex figures using grids</li> <li><input type="radio"/> Estimating area by using rough sketches composed of basic plane figures</li> </ul>
	☆ <b>Review 4</b> p.69	<b>(1)</b>	<input type="radio"/> Reviewing previously learned concepts
	<b>7. Variables and Mathematical Equations</b> p.85-87	<b>2</b>	<ul style="list-style-type: none"> <li><input type="radio"/> Using <math>x</math> and <math>y</math> as representative values of concrete numerical values and expressing the size of a quantity in general terms</li> <li><input type="radio"/> Constructing an equation using <math>x</math> to represent the unknown value in a simple situation and finding the value of <math>x</math></li> </ul>
Oct. (20)	☆ <b>Let's Make a Plan</b> p. 88-89	<b>(2)</b>	<input type="radio"/> Problem solving by selecting necessary information that complies with various conditions
	<b>[Volume 2]</b> <b>8. Characteristics of Whole Numbers</b> p. 4-17	<b>11</b>	<ul style="list-style-type: none"> <li><input type="radio"/> Meaning of even numbers and odd numbers [even number, odd number]</li> <li><input type="radio"/> Meaning of multiple, common multiple, and least common multiple, and how to find them [multiple, common multiple, least common multiple]</li> <li><input type="radio"/> Meaning of factor, common factor, and greatest common factor, and how to find them [factor, common factor, greatest common factor]</li> </ul>
	<b>9. Per Unit Quantity</b> p. 18-36	<b>18</b>	<ul style="list-style-type: none"> <li><input type="radio"/> Meaning of average and how to find it [average]</li> <li><input type="radio"/> Meaning of the size of per unit quantity</li> <li><input type="radio"/> Concept of speed [speed per hour, speed per minute, speed per second]</li> <li><input type="radio"/> Formulae related to speed</li> </ul>
Nov. (20)	☆ <b>Review 5</b> p.37	<b>(1)</b>	<input type="radio"/> Reviewing previously learned concepts
	<b>10. Addition and Subtraction of Fractions</b> p. 38-47	<b>12</b>	<ul style="list-style-type: none"> <li><input type="radio"/> Meaning of simplifying a fraction and finding a common denominator and how to find them [simplifying a fraction, finding a common denominator]</li> <li><input type="radio"/> Addition and subtraction calculation of fractions involving different denominators</li> </ul>
	☆ <b>Keep a Park Clean</b> p.48-49	<b>(2)</b>	<input type="radio"/> Problem involving the relationship of sum of two quantities and how many time as much one quantity is as another.
Dec. (10)	☆ <b>Review 6</b> p.50	<b>(1)</b>	<input type="radio"/> Retaining and reinforcing the concepts learned in the second trimester
	<b>Standard # of periods in 2<sup>nd</sup> trimester: 70 periods</b>		<p><b>58 periods</b> (Adjustable periods (☆): 7 periods) (Optional periods: 5 periods) <span style="float: right;">Total of 12 periods (7 + 5)</span></p>

3 <sup>rd</sup> Trimester			
Month	Unit	# of periods	Instructional content
Jan. (15)	<b>11. Fractions and Decimal numbers</b> p. 51-56	<b>6</b>	<input checked="" type="radio"/> The quotient of the division of whole numbers can be expressed as a fraction <input type="radio"/> Interrelationships between fractions, decimal numbers, and whole numbers
	☆ <b>Let's make 100!</b> p. 57	<b>(1)</b>	<input type="radio"/> Using the numerals 1 to 9 and operational symbols to construct math sentences that have 100 as an answer by using a calculator
	☆ <b>Review 7</b> p. 58-59	<b>(2)</b>	<input type="radio"/> Reviewing previously learned concepts
Feb. (20)	<b>12. Percentage and Graphs</b> p. 60-73	<b>11</b>	<input checked="" type="radio"/> Meaning of relative value and how to find it <input checked="" type="radio"/> Meaning of percentage and how to express it [%, percentage] <input type="radio"/> Meaning of <i>buai</i> and how to express it [ <i>wari, bu, rin, buai</i> ] <input type="radio"/> How to read and draw percentage bar graphs and circle graphs and their characteristics [percentage bar graph, circle graph]
	<b>13. Circles and Regular Polygons</b> p. 74-91	<b>13</b>	<input checked="" type="radio"/> Concepts and characteristics of regular polygons and how to draw them [regular polygon] <input checked="" type="radio"/> Meaning of pi and the formula for finding circumference [circumference, pi] <input checked="" type="radio"/> Area of a circle and its formula <input type="radio"/> Finding out an estimated measure by calculating with measured quantity and an approximated quantity [sector, central angle] <input type="radio"/> Concepts of sector
March (10)	☆ <b>Our Earth</b> p.92-93	<b>(2)</b>	<input type="radio"/> Application of previously learned concepts across different domains <input type="radio"/> Mathematical examination of earthly phenomena
	☆ <b>5<sup>th</sup> Grade Review</b> p.94-98	<b>(5)</b>	<input type="radio"/> Retaining and reinforcing the concepts learned in the second trimester
<b>Standard # of periods in 3<sup>rd</sup> trimester: 45 periods</b>		<b>30 periods</b> (Adjustable periods (☆): 10 periods) (Optional periods: 5 periods)	<b>Total of 15 periods (10 + 5)</b>

<b>Standard # of periods in a year: 175 periods</b>	<b>137 periods*</b> (Adjustable periods (☆): 23 periods) (Optional periods: 15 periods)	<b>Total of 38 periods (23 + 15)</b>
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Note:

- One period is 45 minutes.
- The numbers indicated in the ( ) in the month column show the number of available periods in the month.
- The ☆ symbol in the unit column indicates the periods teachers can adjust by considering students' state of learning.
- The ⊙ symbol in the instructional contents column indicates important content. The [ ] contains terms and symbols students learn in the unit.