

The Learning Objectives of the Key Stage 1 and 2 Mathematics Curriculum

Notes:

1. Learning units are grouped under five strands (“Number”, “Measures”, “Shape and Space”, “Data Handling” and “Algebra”), Further Learning Units and Enrichment Topics.
2. Related learning objectives are grouped under the same learning unit.
3. The notes in the “Remarks” column of the table may be considered as supplementary information about the learning objectives.
4. To aid teachers in judging how far to take a given topic, a suggested lesson time in hours is given against each learning unit. However, the lesson time assigned is for reference only. Teachers may adjust the lesson time to meet their individual needs.
5. The total teaching time for each Key Stage is 285-356 hours (i.e. 12%-15% of the total lesson time).

Learning Unit	Learning Objective	Time	Remarks
Primary 1			
1N1 Numbers to 20	1. recognise numbers 1-20 2. perform counting onwards and counting backwards 3. recognise the concepts of ordinal numbers and cardinal numbers	13.5	Students are required to count, read and write the numbers. Students are not required to use the terms “ordinal numbers” and “cardinal numbers”. Students can use the method of one-to-one correspondence or the concept of cardinal numbers to compare the quantity of two groups of objects.

Learning Unit	Learning Objective	Time	Remarks
	<p>4. recognise the odd and even numbers up to 20</p> <p>5. recognise the decomposition and composition of numbers 2-18</p>		<p>The symbols “>” and “<” are introduced in Learning Unit 2N1.</p> <p>Teachers should arrange hands-on activities for students to decompose a number into two 1-digit numbers and compose a number from two 1-digit numbers, for example, 4 is decomposed into 1 and 3; 4 is composed of 1 and 3.</p> <p>Students are required to present the result of decomposition and composition of a number verbally and also by using text and symbols, for example:</p> <ul style="list-style-type: none"> ● “4 equals 1 plus 3”; “4 minus 3 equals 1” ● “4 = 1 + 3”; “4 – 3 = 1” <p>Note: The symbols “+”, “-” and “=” here are not used for calculation purposes.</p>
<p>1N2 Basic addition and subtraction</p>	<p>1. understand the basic concepts of addition and subtraction</p>	<p>13.5</p>	

Learning Unit	Learning Objective	Time	Remarks
	<p>2. solve simple problems involving addition and subtraction of numbers within 18</p> <p>3. recognise the concept of 0</p> <p>4. understand the relation between addition and subtraction</p> <p>5. recognise the commutative property of addition</p>		<p>Students can solve the related simple problems through oral exercise and record in horizontal form.</p> <p>The column forms of addition and subtraction are dealt with in Learning Unit 1N4.</p> <p>Students are required to recognise the concept of 0 through subtraction and the properties of 0 such as “$0 + 4 = 4$”, “$4 + 0 = 4$” and “$4 - 0 = 4$” etc.</p> <p>The term “whole number” is introduced in Learning Unit 4N6.</p> <p>Teachers can arrange exploring activities for students to discover the relation between addition and subtraction.</p> <p>Teachers can provide students with concrete examples to enable them to discover that the commutative property holds for addition but not for subtraction.</p> <p>Students are not required to use the term “commutative property”.</p>
<p>1N3 Numbers to 100</p>	<p>1. recognise numbers 21-100</p>	<p>6</p>	<p>Students are required to:</p> <ul style="list-style-type: none"> ● count, read and write the numbers ● perform counting onwards and counting backwards ● recognise odd and even numbers up to 100

Learning Unit	Learning Objective	Time	Remarks
	<p>2. recognise the concepts of the units place and the tens place</p> <p>3. compare the magnitude of numbers</p> <p>4. perform counting in groups of 2, 5 and 10</p> <p>5. estimate the quantity of objects</p>		<p>Students are required to recognise the meaning of the numerals in the units place and the tens place, for example in the numeral “24”, “2” is in the tens place and its place value is 20; “4” is in the units place and its place value is 4.</p> <p>The symbols “>” and “<” are introduced in Learning Unit 2N1.</p> <p>Calculation is not required.</p> <p>The quantity to be estimated should be less than 100.</p>
<p>1N4 Addition and subtraction (I)</p>	<p>1. perform addition of two numbers</p> <p>2. perform addition of three numbers</p> <p>3. recognise the associative property of addition</p>	<p>13</p>	<p>The numbers are up to two digits.</p> <p>Addition with carry is required.</p> <p>The numbers are up to two digits.</p> <p>Students are required to recognise that the conventional order of operations goes from left to right, such as $10 + 6 + 2 = 16 + 2 = 18$</p> <p>Teachers can provide students with concrete examples to enable them to discover the associative property of addition.</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>4. perform subtraction of two numbers</p> <p>5. recognise the column form of addition and subtraction</p> <p>6. solve simple problems</p>		<p>Students are not required to use the term “associative property”.</p> <p>The numbers are up to two digits.</p> <p>Subtraction with borrowing is not required.</p> <p>Students are required to use addition to verify the answers.</p> <p>Problems involving mixed operations of addition and subtraction are tackled in Learning Unit 2N5.</p> <p>Students are not required to explain their calculation with statements.</p> <p>Note:</p> <p>(i) The results of the addition should be less than 100.</p> <p>(ii) Students are required to estimate the results of the calculations.</p>
<p>1M1 Length and distance (I)</p>	<p>1. recognise the concepts of length and distance</p> <p>2. compare intuitively the lengths of objects and compare intuitively the distances between</p>	<p>3.5</p>	

Learning Unit	Learning Objective	Time	Remarks
	<p>objects</p> <p>3. compare directly the lengths of objects and compare directly the distances between objects</p> <p>4. compare the lengths of objects and compare the distances between objects in improvised units</p>		<p>Students are required to choose appropriate improvised units for taking measurements.</p>
<p>1M2 Hong Kong money (I)</p>	<p>1. recognise the coins in circulation in Hong Kong</p> <p>2. recognise the notation of marked prices from price tags</p> <p>3. recognise the use of coins in daily life</p>	<p>6</p>	<p>Students are required to read marked prices not more than 10 dollars.</p> <p>Students should read the marked price such as “\$2.50” as “two dollars and fifty cents”.</p> <p>Teachers should write the marked prices in the form such as “\$3.00”.</p> <p>Students are required to count a group of coins with a total not more than 10 dollars, but writing numerical expressions to show the workings is not required.</p> <p>Students are only required to do exchange among:</p> <ul style="list-style-type: none"> ● 10 cents, 20 cents, 50 cents and 1 dollar coins ● 1 dollar, 2 dollars, 5 dollars and 10 dollars coins

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			Problems on giving change are tackled in Learning Unit 2N5.
<p>1M3 Length and distance (II)</p>	<ol style="list-style-type: none"> 1. recognise centimetre (cm) 2. measure and compare the lengths of objects, and measure and compare the distances between objects in centimetre 3. estimate the results of measurements with ever-ready rulers 	4	<p>Students are required to choose appropriate tools for taking measurements.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p>
<p>1M4 Time (I)</p>	<ol style="list-style-type: none"> 1. tell time to the hour and half hour 2. recognise hour (h) 3. measure and compare the time intervals in hour 	6	<p>Students are only required to tell time from analog clocks using "...o'clock" and "half past...".</p> <p>Drawing hour hands and minute hands to indicate time is not required.</p> <p>Each time interval must be integer, and is not more than 12 hours.</p> <p>Given the starting time and finishing time, students are required to find the time interval.</p>

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	<p>4. recognise that there are seven days in a week and the names of the day of the week</p> <p>5. recognise that there are 12 months in a year and the names of the months</p> <p>6. recognise calendars</p>		<p>Whether Monday or Sunday is the first day of the week need not to be stressed.</p> <p>Students are required to get information on dates and the day of the week from a calendar.</p>
<p>1S1 3-D shapes (1)</p>	<p>1. recognise the intuitive concepts of prisms, cylinders, pyramids and balls</p>	<p>6</p>	<p>Identifying intuitively these 3-D shapes from their 2-D representations is required.</p> <p>Teachers should provide opportunities for students to touch, stack up and roll the real objects or models of these 3-D shapes.</p> <p>Teachers should avoid using oblique cones and oblique cylinders as examples of 3-D shapes.</p> <p>The names of different prisms and pyramids are introduced in Learning Unit 3S1.</p>
<p>1S2 2-D shapes</p>	<p>1. recognise the intuitive concepts of points, straight lines and curves</p>	<p>10</p>	<p>Students are required to identify intuitively straight lines and curves.</p> <p>The following concepts are required:</p> <ul style="list-style-type: none"> ● there is only a straight line passing through two given

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	<p>2. draw and make straight lines and curves</p> <p>3. recognise the basic concepts of triangles, quadrilaterals, pentagons, hexagons and circles</p> <p>4. draw and make triangles, quadrilaterals, pentagons, hexagons and circles</p> <p>5. build 2-D shapes by triangles, quadrilaterals, pentagons, hexagons and circles</p>		<p>points; however, there are many curves passing through these two points</p> <ul style="list-style-type: none"> • in mathematics, a point has no part and a line has no breadth <p>Teachers can arrange hands-on activities to consolidate students' conception of straight lines and curves.</p> <p>The concept of line segment is dealt with in Learning Unit 2S3.</p> <p>Teachers can let students use different methods to draw and make straight lines and curves.</p> <p>Teachers can let students use different methods to draw and make these 2-D shapes.</p> <p>Teachers can let students form 2-D shapes by building designated shapes freely or according to instructions, and let them appreciate the beauty of geometric shapes.</p> <p>Students are not required to use the term "geometric shape".</p>

Learning Unit	Learning Objective	Time	Remarks
			Note: This Learning Unit should be arranged subsequent to the Learning Unit 1M1 “Length and distance (I)”.
1S3 Directions and positions (I)	1. use “up”, “down”, “left”, “right”, “front”, “back” and “between” to describe relative positions of objects with respect to the observer’s point of view	3.5	Students are set as observers.
1F1 Inquiry and investigation	Through various learning activities, discover and construct knowledge, further improve the ability to inquire, communicate, reason and conceptualise mathematical concepts	10	This is not an independent and isolated learning unit. The time is allocated for students to engage in learning activities from different learning units, for example, activities on enrichment topics, cross-learning unit activities, and cross-KLA activities that based on mathematical topics.
1E1 Simple Sudoku game	1. perform Sudoku game 2. design Sudoku game	-	
1E2 Sorting methods	1. explore how to determine criteria of sorting	-	Students are required to formulate the criteria of sorting satisfying given conditions, such as satisfying the designated number of groups. The criteria of sorting can be related to attributes such as shapes, colours or patterns on the items.

Learning Unit	Learning Objective	Time	Remarks
Primary 2			
<p>2N1 3-digit numbers</p>	<ol style="list-style-type: none"> 1. recognise 3-digit numbers 2. recognise the concept of the hundreds place 3. compare the magnitude of numbers 4. perform counting in groups of 20, 25, 50 and 100 5. estimate the quantity of objects 	<p>3.5</p>	<p>Students are required to:</p> <ul style="list-style-type: none"> ● count, read and write numbers ● perform counting onwards and counting backwards ● recognise 3-digit odd numbers and even numbers <p>Students are required to recognise the meaning of the numeral on the hundreds place.</p> <p>Students are required to use the symbols “=”, “>” and “<” to express the relation between the magnitude of two numbers.</p> <p>Calculation is not required.</p> <p>The quantity to be estimated should be less than 1000.</p>
<p>2N2 Addition and subtraction (II)</p>	<ol style="list-style-type: none"> 1. perform addition of two numbers 2. perform subtraction of two numbers 3. perform subtraction of three numbers 	<p>7</p>	<p>The numbers are up to three digits.</p> <p>Addition with carry is required.</p> <p>The numbers are up to two digits.</p> <p>Subtraction with borrowing is required.</p> <p>The numbers are up to two digits.</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>4. perform addition by using the commutative or associative properties of addition</p> <p>5. solve problems</p>		<p>Students are required to recognise the conventional order of operations goes from left to right, such as $10 - 7 - 2 = 3 - 2 = 1$.</p> <p>Teachers can provide students with concrete examples to enable them to discover that the associative property does not hold for subtraction.</p> <p>Students are not required to use the term “associative property”.</p> <p>The numbers are up to three digits.</p> <p>Teachers can use examples to enable students to understand that using these properties of addition can speed up the operations.</p> $ \begin{aligned} &1 + 65 + 399 \\ &= 65 + 1 + 399 \\ &= 65 + 400 \\ &= 465 \end{aligned} $ <p>Students are not required to use the terms “commutative property” and “associative property”.</p> <p>Students are required to explain their calculation with statements.</p>

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			<p>Problems involving mixed operations of addition and subtraction are tackled in Learning Unit 2N5.</p> <p>Note:</p> <p>(i) The results of the addition should be less than 1000.</p> <p>(ii) Students are required to estimate the results of the calculations.</p>
<p>2N3 Basic multiplication</p>	<ol style="list-style-type: none"> 1. recognise the basic concept of multiplication 2. understand the multiplication table (0-10) 3. perform basic multiplication 4. recognise the commutative property of multiplication 5. solve problems 	<p>11.5</p>	<p>Teachers can provide students with concrete examples for them to discover the commutative property of multiplication.</p> <p>Students are not required to use the term “commutative property”.</p> <p>Students can use “3×2” or “2×3” to represent two threes, for example: Each box has 3 pieces of cake, how many pieces of cake are there in 2 boxes? It can be recorded with symbols as “3×2” or “2×3”.</p>

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<p>2N4 4-digit numbers</p>	<ol style="list-style-type: none"> 1. recognise 4-digit numbers 2. recognise the concept of the thousands place 3. perform counting in groups of 200, 250, 500 and 1000 4. compare the magnitude of numbers 	<p>2.5</p>	<p>Students are required to:</p> <ul style="list-style-type: none"> • count, read and write numbers • perform counting onwards and counting backwards • recognise 4-digit odd and even numbers <p>Students are required to recognise the meaning of the numeral on the thousands place.</p> <p>Calculation is not required.</p> <p>Note: This Learning Unit should be arranged prior to the Learning Unit 2M3 “Hong Kong money (II)” and 3M5 “Weight (II)”.</p>
<p>2N5 Addition and subtraction (III)</p>	<ol style="list-style-type: none"> 1. perform subtraction of two numbers 2. perform mixed operations of addition and subtraction of three numbers 	<p>8.5</p>	<p>The numbers are up to three digits.</p> <p>Subtraction with borrowing is required.</p> <p>Addition and subtraction of numbers more than three digits are not required.</p> <p>Students are required to recognise that the conventional order of operations goes from left to right, for example:</p>

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	3. solve problems		<p>$7 - 2 + 3 = 5 + 3 = 8$.</p> <p>Problems related to money are required, but the calculations involving decimals are not required.</p> <p>Note:</p> <p>(i) Students are required to estimate the results of the calculations.</p> <p>(ii) This learning unit should be arranged subsequent to the Learning Unit 2M3 “Hong Kong money (II)”.</p>
<p>2N6 Basic division</p>	<p>1. recognise the basic concept of division</p> <p>2. perform basic division</p> <p>3. recognise the relation between multiplication and division</p> <p>4. solve problems</p>	11.5	<p>The concept of remainder is required.</p> <p>Teachers can provide students with concrete examples to enable them to discover that the commutative property does not hold for division.</p> <p>Students are not required to use the term “commutative property”.</p> <p>Teachers can provide students with concrete examples to enable them to discover the relation between multiplication and division.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>2M1 Length and distance (III)</p>	<ol style="list-style-type: none"> 1. recognise metre (m) 2. measure and compare the lengths of objects, and measure and compare the distances between objects in metre 3. record the lengths of objects and the distances between objects in appropriate measuring units 4. estimate the results of measurement with ever-ready rulers 	<p>5</p>	<p>Students are required to choose appropriate tools for taking measurements.</p> <p>Students can use ways such as 110 cm and 1 m 10 cm for recording lengths and distances, and convert 1 m 10 cm to 110 cm.</p> <p>Recording lengths and distances using fractions or decimals are dealt with in Learning Unit 4N7.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p>
<p>2M2 Time (II)</p>	<ol style="list-style-type: none"> 1. tell time to the nearest minute 2. recognise minute (min) 3. measure and compare the time intervals in 	<p>5.5</p>	<p>Students are required to tell time from analog clocks and digital clocks.</p> <p>Drawing hour hands and minute hands to indicate time is not required.</p> <p>Each time interval is not more than 60 minutes.</p>

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	<p>minutes</p> <p>4. recognise that there are 24 hours in a day</p> <p>5. recognise the concepts of morning (a.m.) and afternoon (p.m.)</p> <p>6. tell time using “morning”, “afternoon”, “noon” and “midnight”</p> <p>7. recognise the number of days in each month</p> <p>8. recognise the numbers of days in a common year and a leap year</p> <p>9. solve problems related to the numbers of days spent on events</p>		<p>Students are required to:</p> <ul style="list-style-type: none"> • find the time intervals between starting time and finishing time • find the finishing time from starting time using time intervals <p>Teachers can let students recognise that the time of noon and midnight can be written as “12:00 noon” and “12:00 midnight” respectively.</p> <p>Given any two of the starting date, finishing date and number of days spent on an event, students are required to find the unknown quantity/date through observing calendars.</p>

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<p>2M3 Hong Kong money (II)</p>	<ol style="list-style-type: none"> 1. recognise the notes in circulation in Hong Kong 2. recognise the notation of marked prices of greater amounts from price tags 3. recognise the use of money in daily life 	<p>5</p>	<p>Students are required to recognise the patterns of notes in circulation, for example, recognising the notes with same denominations but issued by different note-issuing organisations.</p> <p>Students are required to read marked prices not more than 1000 dollars.</p> <p>Students should read the marked price such as “\$23.50” as “twenty-three dollars and fifty cents”.</p> <p>Teachers should write the marked prices in the form such as “\$23.00”.</p> <p>Students are required to count a group of notes and coins with a total not more than 1000 dollars, but writing numerical expressions to show the workings is not required.</p> <p>Students are only required to do exchange among:</p> <ul style="list-style-type: none"> ● 10 dollars, 20 dollars, 50 dollars and 100 dollars notes ● 100 dollars, 500 dollars and 1000 dollars notes <p>Problems on giving change are tackled in Learning Unit 2N5.</p> <p>Problems of decimal operations involving money is tackled in Learning Units 5N4、5N5 and 6N1.</p>

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			<p>Note: This Learning Unit should be arranged subsequent to the Learning Unit 2N4 “4-digit numbers” and prior to 2N5 “Addition and subtraction (III)”.</p>
<p>2M4 Weight (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of weight 2. compare intuitively the weights of objects 3. compare directly the weights of objects 4. compare the weights of objects in improvised units 	<p>4</p>	<p>Students are required to choose appropriate improvised units for taking measurements.</p> <p>Note: This learning unit can also be taught in P3, but it should be arranged prior to the Learning Unit 3M5 “Weight (II)”.</p>
<p>2S1 Angles</p>	<ol style="list-style-type: none"> 1. recognise the concept of angles 2. compare the sizes of angles 3. recognise the concepts of right angles and perpendicular lines 4. draw and make perpendicular lines 	<p>6</p>	<p>The unit “degree” is introduced in Learning Unit 6M1.</p> <p>Drawing under the following conditions is required:</p> <ul style="list-style-type: none"> • through a given point on a straight line, draw a straight

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	<p>5. recognise the concepts of acute angles and obtuse angles</p> <p>6. draw and make angles of different sizes</p>		<p>line perpendicular to the given straight line</p> <ul style="list-style-type: none"> through a given point not on the straight line, draw a straight line perpendicular to the given straight line <p>Students are required to recognise that the length of the perpendicular line segment from a point to a straight line is the distance between the point and the straight line.</p> <p>Teachers can let students use different tools, such as rulers and set squares to draw perpendicular lines, but the straight edge and compass construction is not required.</p> <p>The concepts of straight angles, round angles and reflex angles, and the unit “degree” are dealt with in Learning Unit 6M1.</p> <p>Teachers can let students use different methods to draw and make angles of different sizes.</p>
<p>2S2 Directions and positions (II)</p>	<p>1. recognise the four main directions: east, south, west and north</p> <p>2. use a compass to measure directions</p>	<p>2.5</p>	<p>Students are required to recognise the short forms “E”, “S”, “W” and “N”.</p>

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<p>2S3 Quadrilaterals (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of line segments 2. recognise the concept of quadrilaterals 3. recognise the concepts and basic properties of squares and rectangles 4. draw and make squares and rectangles 	<p>9</p>	<p>Students are required to recognise that amongst the connected line and all curves between any two points, the line segment has the shortest length.</p> <p>The concepts of opposite sides and adjacent sides are required.</p> <p>The basic properties of squares include:</p> <ul style="list-style-type: none"> • the four angles are right angles • the four sides are equal in length <p>The basic properties of rectangles include:</p> <ul style="list-style-type: none"> • the four angles are right angles • the opposite sides are equal in length <p>In this Learning Unit, teachers should avoid using squares as examples to describe the properties of rectangles.</p> <p>The inclusion relation between squares and rectangles is dealt with in Learning Unit 4S1.</p> <p>Teachers can let students use different methods to draw and make squares and rectangles.</p>
<p>2D1 Pictograms (I)</p>	<ol style="list-style-type: none"> 1. recognise pictograms 	<p>3.5</p>	<p>Teachers should let students recognise the importance of organisation and representation of data through concrete</p>

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	<ol style="list-style-type: none"> 2. interpret pictograms 3. construct pictograms 		<p>examples.</p> <p>Pictograms include those in horizontal and vertical forms.</p> <p>Pictograms are confined to those using the one-to-one representations.</p>
<p>2F1 Inquiry and investigation</p>	<p>Through various learning activities, discover and construct knowledge, further improve the ability to inquire, communicate, reason and conceptualise mathematical concepts</p>	<p>10</p>	<p>This is not an independent and isolated learning unit. The time is allocated for students to engage in learning activities from different learning units, for example, activities on enrichment topics, cross-learning unit activities, and cross-KLA activities that based on mathematical topics.</p>
<p>2E1 Time-recording and timing devices</p>	<ol style="list-style-type: none"> 1. recognise the time-recording and timing devices in modern and ancient times 	<p>-</p>	
<p>2E2 Block charts</p>	<ol style="list-style-type: none"> 1. recognise block charts 2. interpret block charts 3. construct block charts 	<p>-</p>	

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Primary 3			
3N1 5-digit numbers	1. recognise 5-digit numbers 2. recognise the concept of the ten thousands place 3. compare the magnitude of numbers	2.5	Students are required to: <ul style="list-style-type: none"> ● count, read and write numbers ● perform counting onwards and counting backwards ● recognise 5-digit odd and even numbers Students are required to recognise the meaning of the numeral on the ten thousands place.
3N2 Multiplication (I)	1. perform simple multiplication	6	Simple multiplication includes: <ul style="list-style-type: none"> ● 2-digit number \times 1-digit number (1-digit number \times 2-digit number) ● 3-digit number \times 1-digit number (1-digit number \times 3-digit number) Students are required to understand the principle of operation of multiplication in column form, for example, to understand why the product of 43×2 can be obtained by calculating $40 \times 2 + 3 \times 2$, and why “8” is written under “4”.

Learning Unit	Learning Objective	Time	Remarks
	<p>2. perform multiplication of three numbers</p> <p>3. solve problems</p>		<p>Teachers can provide students with concrete examples to enable them to discover the associative property of multiplication.</p> <p>Students are not required to use the term “associative property”.</p> <p>Note: Students are required to estimate the results of the calculations.</p>
<p>3N3 Division (I)</p>	<p>1. perform simple division</p> <p>2. perform division of three numbers</p>	<p>7.5</p>	<p>Simple division includes:</p> <ul style="list-style-type: none"> ● 2-digit number \div 1-digit number ● 3-digit number \div 1-digit number <p>Students are required to understand the principle of operation of division in column form, for example, to understand why the quotient of $68 \div 2$ can be obtained by calculating $60 \div 2 + 8 \div 2$, and why “3” is written above “6”.</p> <p>Division involving remainder is required.</p> <p>Teachers may provide students concrete examples to enable them to discover that the associative property does not hold for division.</p>

Learning Unit	Learning Objective	Time	Remarks
	3. solve problems		<p>Students are not required to use the term “associative property”.</p> <p>Note: Students are required to estimate the results of the calculations.</p>
<p>3N4 Four arithmetic operations (I)</p>	<p>1. recognise and use brackets</p> <p>2. perform mixed operation of addition and subtraction of three numbers</p> <p>3. perform mixed operations of addition and multiplication, subtraction and multiplication of not more than four numbers</p> <p>4. solve problems</p>	13.5	<p>Addition and subtraction of numbers more than four digits are not required.</p> <p>Teachers can provide concrete examples to let students recognise the following relations:</p> <ul style="list-style-type: none"> • $a \times (b + c) = a \times b + a \times c$ • $(a + b) \times c = a \times c + b \times c$ • $a \times (b - c) = a \times b - a \times c$ • $(a - b) \times c = a \times c - b \times c$ <p>where a, b and c are whole numbers.</p>

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			<p>The term “distributive property of multiplication” needs not be introduced and the application of the above relations is dealt with in Learning Unit 4N5.</p> <p>Note:</p> <p>(i) Mixed operations can involve more than one bracket. But operations involving multiple levels of brackets such as $(4 - (2 - 1)) \times 3$, are not required.</p> <p>(ii) Students are required to estimate the results of the calculations.</p>
<p>3N5 Fractions (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of fractions 2. recognise the concept of equivalent fractions 3. compare the magnitude of fractions with the same denominator or numerator 4. perform addition and subtraction of at most three fractions with the same denominator 	<p>9</p>	<p>The concept of fractions includes:</p> <ul style="list-style-type: none"> ● fractions as a part of a whole object (one whole) ● fractions as a part of a set of objects (one whole) <p>Students can learn the concept of equivalent fractions through the use of concrete objects and diagram representations. The concepts of expanding and reducing of fractions is dealt with in Learning Unit 4N6.</p> <p>The results should not greater than 1.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>3M1 Length and distance (IV)</p>	<ol style="list-style-type: none"> 1. recognise kilometre (km) 2. compare the lengths of objects and compare the distances between objects in kilometre 3. recognise millimetre (mm) 4. measure and compare the lengths of objects, and measure and compare the distances between objects in millimetre 5. record the lengths of objects and the distances between objects with appropriate measuring units 	<p>6</p>	<p>Students are required to choose appropriate tools for taking measurements.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Students can use ways such as 13 mm and 1 cm 3 mm for recording lengths and distances, and convert 1 cm 3 mm to 13 mm.</p> <p>Recording lengths and distances using fractions or decimals are dealt with in Learning Unit 4N7.</p>
<p>3M2 Time (III)</p>	<ol style="list-style-type: none"> 1. tell time to the nearest second 	<p>4</p>	<p>Students are required to tell time from analog clocks and digital clocks.</p> <p>Drawing hour hands, minute hands and second hands to</p>

Learning Unit	Learning Objective	Time	Remarks
	<ol style="list-style-type: none"> 2. recognise second (s) 3. measure and compare the time intervals in seconds 		<p>indicate time is not required.</p> <p>Each time interval is not more than 60 seconds.</p> <p>Given any two of the starting time, finishing time and time interval, students are required to find the unknown quantity/time.</p> <p>Teachers should encourage students to estimate the time intervals.</p>
<p>3M3 Capacity</p>	<ol style="list-style-type: none"> 1. recognise the concept of capacity 2. compare intuitively the capacities of containers 3. compare directly the capacities of containers 4. compare the capacities of containers in improvised units 5. recognise litre (L) and millilitre (mL) 	<p>7</p>	<p>Students are required to choose appropriate improvised units for taking measurements.</p> <p>Students are required to recognise that litre and millilitre can be written as “ℓ” and “mℓ” respectively.</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>6. measure and compare the capacities of containers in litre and millilitre</p> <p>7. record the capacity of containers with appropriate measuring units</p>		<p>Students are required to choose appropriate tools for taking measurements.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Students can use ways such as 1030 mL and 1 L 30 mL for recording capacities, and convert 1 L 30 mL to 1030 mL.</p> <p>Recording capacities using fractions or decimals is dealt with in Learning Unit 4N7.</p> <p>Note: Teachers can consider using real-life examples or related learning elements in Science Education or Technology Education KLAs to enhance learning and teaching.</p>
<p>3M4 Time (IV)</p>	<p>1. recognise the 24-hour time</p> <p>2. Tell time in term of the 24-hour time</p>	<p>3</p>	
<p>3M5 Weight (II)</p>	<p>1. recognise gram (g) and kilogram (kg)</p>	<p>4</p>	<p>Gram and kilogram are units of mass. However, in view of the language habits of the majority in their daily life, it is</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>2. measure and compare the weights of objects in gram and kilogram</p> <p>3. record the weight of objects in appropriate measuring units</p>		<p>suggested not to mention the term “mass”.</p> <p>Students are required to choose appropriate tools for taking measurements.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Students can use ways such as 1030 g and 1 kg 30 g for recording weights, and convert 1 kg 30 g to 1030 g.</p> <p>Recording weights using fractions or decimals is dealt with in Learning Unit 4N7.</p> <p>Note: This learning unit can also be taught in P2, but it should be arranged subsequent to the Learning Unit 2N4 “4-digit numbers” and 2M4 “Weight (I)”.</p>
<p>3S1 3-D shapes (II)</p>	<p>1. recognise the concept of faces of a 3-D shape</p>	<p>3</p>	<p>The concepts include the bases and lateral faces of a prism and a pyramid, the bases and curved surface of a cylinder and a cone, and the curved surface of a ball.</p>

Learning Unit	Learning Objective	Time	Remarks
	2. recognise the names of different prisms and pyramids		<p>Students are required to recognise the names of different prisms and pyramids, such as “rectangular prism” and “pentagonal pyramid”.</p> <p>The terms “cubes” and “cuboids” are introduced in Learning Unit 5S3.</p>
<p>3S2 Quadrilaterals (II)</p>	<p>1. recognise the concept of parallel lines</p> <p>2. draw and make parallel lines</p> <p>3. recognise the concept and properties of parallelograms</p> <p>4. recognise squares and rectangles are parallelograms</p> <p>5. recognise the concept and property of trapeziums</p>	7	<p>Students are required to recognise that two parallel lines are equidistant everywhere.</p> <p>Teachers can let students use different tools, such as rulers and set squares to draw parallel lines, but the straight edge and compass construction is not required.</p> <p>The properties of parallelograms include:</p> <ul style="list-style-type: none"> ● opposite sides are parallel ● opposite sides are equal in length <p>The concepts of the upper base and lower base of a trapezium are required.</p> <p>The property of trapeziums includes: only one pair of opposite sides are parallel (that is, the upper and lower bases</p>

Learning Unit	Learning Objective	Time	Remarks
	6. draw and make parallelograms and trapeziums		<p>are parallel)</p> <p>Teachers can let students use different methods to draw and make parallelograms and trapeziums.</p>
<p>3S3 Triangles</p>	<p>1. recognise the concepts of right-angled triangles, isosceles triangles, equilateral triangles, right-angled isosceles triangles and scalene triangles</p> <p>2. recognise the relations between different types of triangles</p> <p>3. recognise that the sum of any two sides of a triangle is greater than the remaining side</p> <p>4. draw and make triangles</p>	<p>8.5</p>	<p>Students are required to recognise that isosceles right-angled triangles can be called as “right-angled isosceles triangles”.</p> <p>The relations include:</p> <ul style="list-style-type: none"> ● all right-angled isosceles triangles are right-angled triangles ● all right-angled isosceles triangles are isosceles triangles ● all equilateral triangles are isosceles triangles <p>Teachers can illustrate the inclusion relations between different types of triangles by using such as Venn diagrams or tree diagrams.</p> <p>Students are not required to use the term “inclusion relation”.</p> <p>Teachers can arrange hands-on exploratory activities for students to enable them to discover this property.</p> <p>Teachers can let students use different methods to draw and</p>

Learning Unit	Learning Objective	Time	Remarks
			<p>make triangles.</p> <p>Using the property in Learning Objective 3S3.3 to make triangles is required.</p>
<p>3D1 Bar charts (I)</p>	<ol style="list-style-type: none"> 1. recognise bar charts 2. interpret bar charts 3. construct bar charts 	<p>4</p>	<p>Bar charts include those in horizontal and vertical forms.</p> <p>Students are required to:</p> <ul style="list-style-type: none"> • collect data • construct frequency tables using the symbols “++++” or “正” for recording data • choose the one-to-one, one-to-two or one-to-five representations according to the magnitudes of the data
<p>3F1 Inquiry and investigation</p>	<p>Through various learning activities, discover and construct knowledge, further improve the ability to inquire, communicate, reason and conceptualise mathematical concepts</p>	<p>10</p>	<p>This is not an independent and isolated learning unit. The time is allocated for students to engage in learning activities from different learning units, for example, activities on enrichment topics, cross-learning unit activities, and cross-KLA activities that based on mathematical topics.</p>

Learning Unit	Learning Objective	Time	Remarks
3E1 Curve stitching	1. recognise and appreciate samples of curve stitching 2. make curve stitching patterns	-	
3E2 The map-colouring problem	1. explore whether four colours suffice to colour the regions of a map so that any two adjacent regions have different colours	-	

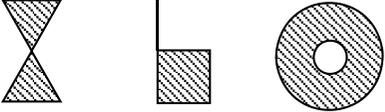
Grand Total : 285 hours

Learning Unit	Learning Objective	Time	Remarks
	<p>2. recognise the concept of divisibility</p> <p>3. solve problems</p>		<p>Students are required to understand the principle of operation of division in column form.</p> <p>Students are required to recognise the tests of divisibility of 2, 3, 5 and 10.</p> <p>Students are required to use the divisibility of 2 to recognise the concepts of odd and even numbers.</p> <p>Note: Students are required to estimate the results of the calculations.</p>
<p>4N3 Multiples and factors</p>	<p>1. understand the concept of multiples</p> <p>2. understand the concept of factors</p> <p>3. understand the relation between factors and multiples</p> <p>4. recognise the concepts of prime numbers and composite numbers</p>	<p>8.5</p>	<p>Finding all the factors of a nonzero whole number is required.</p> <p>Students are required to determine whether a given number which does not exceed 100 is a prime number and find all prime numbers within 100 by the Sieve of Eratosthenes.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>4N4 Common multiples and common factors</p>	<ol style="list-style-type: none"> 1. understand the concepts of common multiples and common factors 2. use enumeration method to find the common multiples and common factors of two numbers 3. understand the concepts of the least common multiples and the highest common factors 4. use enumeration method to find the highest common factors and the least common multiples of two numbers 5. use short division to find the highest common factors and the least common multiples of two numbers 	<p>7.5</p>	<p>Students are required to list the multiples/factors of two numbers, hence find the common multiples/factors of the two numbers.</p> <p>Students are required to list the factors/multiples of two numbers, hence find the highest common factors/the least multiples of the two numbers.</p> <p>Students are required to recognise the short forms “H.C.F.” and “L.C.M.”.</p>
<p>4N5 Four arithmetic operations (II)</p>	<ol style="list-style-type: none"> 1. recognise the distributive property of multiplication 	<p>8.5</p>	<p>Teachers can provide students with concrete examples to enable them to discover the distributive property of multiplication.</p> <p>Students are not required to use the term “distributive</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>2. perform mixed operations of not more than four numbers</p> <p>3. perform mixed arithmetic operations of not more than five numbers</p> <p>4. solve problems</p>		<p>property”.</p> <p>The mixed operations include:</p> <ul style="list-style-type: none"> • mixed operations of division and addition • mixed operations of division and subtraction • mixed operations of division and multiplication <p>Teachers can use examples to enable students to understand that using the properties of addition and multiplication can speed up the operations.</p> <p>Teachers should encourage students to solve complicated problems by parts.</p> <p>Note:</p> <p>(i) Mixed operations can involve more than one bracket. But operations involving multiple levels of brackets such as $(4 - (2 - 1)) \div 3$, are not required.</p> <p>(i) Students are required to estimate the results of the calculations.</p>
<p>4N6 Fractions (II)</p>	<p>1. recognise the concepts of proper fractions, improper fractions and mixed numbers</p> <p>2. perform the interconversion between improper</p>	<p>15.5</p>	<p>The term “whole number” should be introduced.</p> <p>Students are required to recognise that a mixed number is the addition of a whole number and a proper fraction.</p>

Learning Unit	Learning Objective	Time	Remarks
			<p>(i) In the operations involving three fractions with different denominators, all denominators should not exceed 12.</p> <p>(ii) Students can express calculation results as mixed numbers or improper fractions in the lowest terms.</p> <p>(iii) Students are required to estimate the results of the calculations.</p>
<p>4N7 Decimals (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of decimals 2. recognise the concepts of tenth, hundredth, thousandth and ten thousandth places 3. compare the magnitude of numbers 4. recognise the daily life applications of decimals 	<p>3</p>	<p>Students are required to understand the relation between decimals and fractions and that they are the ways of expressing numbers.</p> <p>Students are also required to recognise the concepts of one decimal place, two decimal places, three decimal places and four decimal places.</p> <p>Comparing the magnitude of the whole numbers, fractions with denominators being factors of 100 and decimals is required.</p> <p>Students are required to interconvert between units, for example: $1.234 \text{ L} = 1234 \text{ mL}$ $23 \text{ dollars } 50 \text{ cents} = 23.5 \text{ dollars}$</p> <p>Note: Interconversion between the units of time is dealt with in Learning Unit 6M4.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>4M1 Perimeter (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of perimeter 2. measure and compare the perimeters of 2-D shapes 3. recognise and use the formulae for finding the perimeter of squares and rectangles 	<p>7</p>	<p>Students are not required to find the perimeters of 2-D shapes such as:</p> <div style="text-align: center;">  </div> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Students are required to find the perimeters of 2-D shapes built from squares and rectangles.</p> <p>Operations can involve more than five numbers.</p>
<p>4M2 Area (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of area 2. compare intuitively the areas of 2-D shapes 3. compare directly the areas of 2-D shapes 4. compare the areas of 2-D shapes in improvised units 	<p>7</p>	<p>Students are required to compare indirectly the areas of 2-D shapes, for examples:</p> <ul style="list-style-type: none"> • If A and B are of equal areas and the area of B is smaller than that of C, then the area of A is smaller than that of C

Learning Unit	Learning Objective	Time	Remarks
	<p>5. recognise square centimetre (cm²) and square metre (m²)</p> <p>6. measure and compare the areas of 2-D shapes in centimetre and square metre</p> <p>7. recognise and use the formulae for areas of squares and rectangles</p>		<ul style="list-style-type: none"> • If the area of A is greater than that of B and the area of B is greater than that of C, then the area of A is greater than that of C • If the area of A is smaller than that of B and C, the area of A is the smallest. The area of B and C are required to be compared again. <p>Students are required to choose appropriate improvised units for taking measurements.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Interconversion between square centimetre and square metre is not required.</p> <p>Students are required to find the areas of 2-D shapes built from squares and rectangles.</p> <p>Operations can involve more than five numbers.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>4S1 Quadrilaterals (III)</p>	<ol style="list-style-type: none"> 1. recognise the concept and properties of rhombuses 2. draw and make rhombuses 3. recognise the relations between different types of quadrilaterals 	<p>8</p>	<p>The properties of rhombuses include:</p> <ul style="list-style-type: none"> • all four sides are equal in length • opposite sides are parallel <p>Teachers can let students use different methods to draw and make parallelograms and trapeziums.</p> <p>The relations include:</p> <ul style="list-style-type: none"> • all squares are rectangles • all squares, rectangles and rhombuses are parallelograms • all squares are rhombuses <p>Teachers can illustrate the inclusion relations between different types of quadrilaterals by using such as Venn diagrams or tree diagrams.</p> <p>Students are not required to use the term “inclusion relation”.</p>
<p>4S2 Dissecting and forming shapes</p>	<ol style="list-style-type: none"> 1. dissect a polygon into smaller polygons 2. form a polygon from smaller polygons 	<p>3</p>	

Learning Unit	Learning Objective	Time	Remarks
<p>4D1 Bar charts (II)</p>	<ol style="list-style-type: none"> 1. recognise bar charts of greater frequency counts 2. interpret bar charts of greater frequency counts 3. recognise the concept of approximation 4. construct bar charts of greater frequency counts 	<p>5</p>	<p>Bar charts include those in horizontal and vertical forms.</p> <p>Students are required to get approximate values of data by rounding off.</p> <p>Students are required to:</p> <ul style="list-style-type: none"> ● classify data ● use frequency tables for recording data ● choose the one-to-ten, one-to-fifty or one-to-hundred representations according to the magnitudes of the data ● round off data to fit the chosen representation <p>Teachers can let students use IT to construct bar charts of greater frequency counts.</p>
<p>4F1 Inquiry and investigation</p>	<p>Through various learning activities, discover and construct knowledge, further improve the ability to inquire, communicate, reason and conceptualise mathematical concepts</p>	<p>10</p>	<p>This is not an independent and isolated learning unit. The time is allocated for students to engage in learning activities from different learning units, for example, activities on enrichment topics, cross-learning unit activities, and cross-KLA activities that based on mathematical topics.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>4E1 Eulerian paths</p>	<p>1. recognise Eulerian paths</p> <p>2. explore the properties of a figure that has an Eulerian paths</p>	<p>-</p>	<p>Teachers can use the Seven Bridges of Königsberg problem to introduce Eulerian paths.</p>
<p>4E2 Sorting diagrams</p>	<p>1. recognise sorting diagrams and their applications</p>	<p>-</p>	<p>Students are required to use various sorting diagrams to sort data such as numbers and shapes and to display their findings.</p>

Learning Unit	Learning Objective	Time	Remarks
Primary 5			
5N1 Multi-digit numbers	1. recognise the concept of multi-digit numbers 2. recognise the spacing of digits for large numbers 3. compare the magnitude of numbers 4. use rounding off to obtain approximation of multi-digit numbers 5. estimate the number of a large quantity of object	3	Students are required to: <ul style="list-style-type: none"> • count, read and write numbers • perform counting onwards and counting backwards • recognise multi-digit odd and even numbers Students are not required to leave spacing of digits for 4-digit numbers. Rounding off multi-digit numbers to the nearest thousands, ten thousands, hundred thousands, millions, ten millions or hundred millions is required, for example: Rounding off 123 456 789 to the nearest ten thousands is 123 460 000. For example estimate the number of words in a book.
5N2 Fractions (III)	1. perform multiplication of not more than three numbers 2. solve problems	8	Multiplication of fractions and whole numbers is required. Multiplication of three fractions involves at most one mixed number. Note:

Learning Unit	Learning Objective	Time	Remarks
			<p>(i) Students can express calculation results as mixed numbers or improper fractions in the lowest terms.</p> <p>(ii) Students are required to estimate the results of the calculations.</p>
<p>5N3 Decimals (II)</p>	<p>1. perform addition and subtraction of two numbers</p> <p>2. perform mixed addition and subtraction of three numbers</p> <p>3. solve problems</p>	<p>5</p>	<p>The decimals involved are confined to that of one decimal place or two decimal places.</p> <p>The addition and subtraction of decimals and whole numbers are required.</p> <p>The decimals involved are confined to that of one decimal place or two decimal places.</p> <p>The mixed addition and subtraction of decimals and whole numbers is required.</p> <p>Note:</p> <p>(i) Students are required to estimate the results of the calculations.</p> <p>(ii) The calculation process should not involve addition and subtraction of numbers with more than 4 digits. For example, the following calculations are not required: $1.2345 + 5.6$, $1234.5 - 5.6$, $123.4 + 56.78$, $1234 - 5.6$.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>5N4 Decimals (III)</p>	<ol style="list-style-type: none"> 1. perform multiplication of a number and 10, 100, 1000 2. perform multiplication of a number and 0.1, 0.01, 0.001 3. perform the multiplication of two numbers 4. solve problems 	<p>7</p>	<p>The number should be a whole number or a decimal.</p> <p>The number should be a whole number or a decimal.</p> <p>The decimals involved are confined to that of one decimal place or two decimal places.</p> <p>Students are also required to perform the multiplication of decimals and whole numbers.</p> <p>Students are required to recognise and use the symbol “\approx”.</p> <p>Note: (for Learning Objectives 3 & 4)</p> <ul style="list-style-type: none"> (i) Students can round off calculation results to the nearest tenth or hundredth. (ii) The calculation process should not involve numbers of more than 3 digit times numbers of 2 digit. (iii) Students are required to estimate the results of the calculations.
<p>5N5 Fractions (IV)</p>	<ol style="list-style-type: none"> 1. recognise more on the concept of fractions 	<p>9</p>	<p>Students are required to recognise that fractions can be regarded as the quotient or the ratio of two whole numbers.</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>2. perform division of not more than three numbers</p> <p>3. perform mixed arithmetic operations of three numbers</p> <p>4. solve problems</p>		<p>The symbol of ratios “:” needs not be introduced.</p> <p>Division of fractions and whole numbers is required.</p> <p>Division of three fractions involves at most one mixed number.</p> <p>Mixed arithmetic operations of fractions and whole numbers is required.</p> <p>Mixed operation of three fractions involves at most one mixed number.</p> <p>Solving problems involving direct proportion by the unitary method is required.</p> <p>Students are not required to use the term “direct proportion”.</p> <p>The problems involving finding the original numbers are tackled in Learning Unit 5A1 and 6A1. For example, If $\frac{3}{4}$ of a number is 30, find this number.</p> <p>Solving complicated problems such as finding the ratio of comparison of two numbers and the ratio of a number after the change are not required, for example:</p>

Learning Unit	Learning Objective	Time	Remarks
			<p>(i) A's weight is 100 kg and B's weight is 80 kg. Find the fraction by which A is heavier than B?</p> <p>(ii) The original weight of John was 100 kg. He is 80 kg now. How much does his weight have decreased in fraction?</p> <p>Note:</p> <p>(i) Students can express calculation results as mixed numbers or improper fractions in the lowest terms.</p> <p>(ii) Students are required to estimate the results of the calculations.</p>
<p>5A1 Elementary algebra</p>	<p>1. recognise the use of letters to represent numbers</p> <p>2. write algebraic expressions for the operations or relations of quantities presented by textual descriptions and involving unknown quantities</p>	<p>6</p>	<p>Students are required to recognise the representations such as:</p> <ul style="list-style-type: none"> • $3x$ is $3 \times x$, $x \times 3$ or $x + x + x$ • $\frac{x}{3}$ is $x \div 3$, $\frac{1}{3} \times x$ or $x \times \frac{1}{3}$ <p>Note: Each of the algebraic expressions to be discussed in this learning unit involves only one unknown quantity.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>5A2 Simple equations (I)</p>	<p>1. recognise the concept of equations</p> <p>2. solve simple equations</p>	<p>9</p>	<p>Simple equations include some linear equations in one unknown that the principle of solving an equation can be illustrated by the ideas of balance. Types of equations include:</p> <ol style="list-style-type: none"> 1. $x + c = d$ 2. $x - c = d$ 3. $ax = c$ 4. $\frac{x}{a} = c$ 5. $ax + c = d$ 6. $ax - c = d$ 7. $a(x + c) = d$ 8. $a(x - c) = d$ 9. $\frac{x + c}{a} = d$ 10. $\frac{x - c}{a} = d$ <p>where a, c and d are whole numbers, and a is not equal to zero.</p> <p>Teachers should use the idea of balance to illustrate the processes of solving an equation.</p>

Learning Unit	Learning Objective	Time	Remarks
	<ol style="list-style-type: none"> 3. solve problems by using equations 		<p>Note: Students are required to check the answer after solving equations or problems.</p>
<p>5M1 Area (II)</p>	<ol style="list-style-type: none"> 1. recognise the concept of height of triangles and quadrilaterals 2. recognise and use the formulae for finding the areas of parallelograms, triangles and trapeziums 3. find the area of polygons 	<p>9</p>	<p>Students are only required to recognise the corresponding height of each side of triangles and convex quadrilaterals.</p> <p>Students are not required to use the term “convex quadrilaterals”.</p> <p>Note: Operations in this learning unit can involve more than three numbers.</p>
<p>5M2 Volume (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of volume 2. compare intuitively the volume of objects 3. recognise cubic centimetre (cm³) 	<p>7</p>	

Learning Unit	Learning Objective	Time	Remarks
	<p>4. measure and compare the volumes of objects in cubic centimetre</p> <p>5. recognise cubic metre (m³)</p> <p>6. recognise and use the formulae for finding the volumes of cubes and cuboids</p>		<p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Interconversion between cubic centimetre and cubic metre is not required.</p> <p>Students are required to find the volumes of simple 3-D shapes built from cubes and cuboids.</p> <p>Finding the length of one edge of a cube from its volume is not required.</p> <p>Note: Operations in this learning unit can involve more than three numbers.</p>
<p>5S1 Directions and positions (III)</p>	<p>1. recognise the four compass points: southeast, northeast, southwest and northwest</p> <p>2. use the compass to measure directions</p>	<p>3.5</p>	<p>Students are required to recognise the short forms “SE”, “NE”, “SW” and “NW”.</p> <p>The directions include east, south, west, north, southeast, northeast, southwest and northwest.</p>
<p>5S2 Circles</p>	<p>1. recognise the concept and basic properties of circles</p>	<p>2.5</p>	<p>The concepts of centre, radius, diameter and circumference of a circle are required.</p> <p>The basic properties of circles include:</p> <ul style="list-style-type: none"> ● all the points on a circle are at equidistant from its centre

Learning Unit	Learning Objective	Time	Remarks
	<p>2. draw circles</p>		<ul style="list-style-type: none"> ● amongst all line segments joining any two points on a circle, those passing through the centre are the longest ● the length of the diameter is twice the length of the radius <p>Teachers can let students use different methods to draw circles, including using compasses.</p> <p>Teachers can let students freely create their own drawings which build up by circles, and let them appreciate the beauty of geometric shapes.</p> <p>Note: This Learning Unit should be arranged prior to the Learning Unit 5S3 “3-D shapes (III)”.</p>
<p>5S3 3-D shapes (III)</p>	<p>1. recognise the concepts of the cross sections of a prism and a cylinder</p> <p>2. recognise the cross-sections of pyramids and cones</p>	<p>10</p>	<p>Students are required to recognise the cross sections of a prism and a cylinder, which are parallel to the bases, their sizes and shapes are the same as that of the bases.</p> <p>Students are not required to use the term “uniform cross sections”.</p> <p>Students are required to recognise the cross-sections of pyramids and cones, which are parallel to their bases, their sizes are different from that of the bases.</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>3. recognise the concepts of vertices and edges of a 3-D shape</p> <p>4. recognise the concepts of cubes and cuboids</p> <p>5. recognise the concept and basic properties of balls</p>		<p>Students are required to recognise and make the nets of cubes and cuboids.</p> <p>Teachers may arrange the activity of making frameworks of cubes and cuboids to enhance students' recognition of vertices, edges and faces of 3-D shapes.</p> <p>At primary levels, teachers should avoid using cubes to explain the concepts of cuboids.</p> <p>The concepts of the surface and the centre of a ball are required.</p> <p>The basic properties of balls include:</p> <ul style="list-style-type: none"> ● all the points on the surface are at equidistant from the centre ● all the cross-sections of a ball are circles <p>Teachers can make use of the concrete objects or the computer software to help students recognise the basic properties of balls.</p> <p>Note: This Learning Unit should be arranged subsequent to</p>

Learning Unit	Learning Objective	Time	Remarks
			the Learning Unit 5S2 “Circles”.
<p>5D1 Bar charts (III)</p>	<ol style="list-style-type: none"> 1. recognise compound bar charts 2. interpret compound bar charts 3. construct compound bar charts 	6	<p>Compound bar charts include those in horizontal and vertical forms.</p> <p>Students can start to write large numbers in ways such as 1 million and 10 million in the strand of Data Handling, but they are required to avoid inappropriate style of writing such as 130 hundred and 3 hundred thousand.</p> <p>Students are required to:</p> <ul style="list-style-type: none"> • choose the one-to-thousand, one-to-ten thousand or one-to-hundred thousand representations according to the magnitudes of the data • round off data to fit the chosen representation <p>Teachers can let students use IT to construct compound bar charts.</p>
<p>5F1 Inquiry and investigation</p>	<p>Through various learning activities, discover and construct knowledge, further improve the ability to inquire, communicate, reason and conceptualise mathematical concepts</p>	10	<p>This is not an independent and isolated learning unit. The time is allocated for students to engage in learning activities from different learning units, for example, activities on enrichment topics, cross-learning unit activities, and cross-KLA activities that based on mathematical topics.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>5E1 Chinese numerals and Roman numerals</p>	<ol style="list-style-type: none"> 1. recognise the elaborate form of Chinese numerals 2. recognise traditional Chinese numerals and Roman numerals 3. explore the advantages of using the denary number system for representing numbers 	<p>-</p>	<p>The rules for the representation of numbers using traditional Chinese numerals and Roman numerals can be introduced.</p>
<p>5E2 Exploration of 3-D shapes</p>	<ol style="list-style-type: none"> 1. understand the relations between the number of sides of the base, the number of faces, the number of edges and the number of vertices of a prism 2. understand the relations between the number of sides of the base, the number of faces, the number of edges and the number of vertices of a pyramid 3. recognise the nets of prisms, cylinders, pyramids and cones 4. recognise different cross-sections of prisms, cylinders, pyramids and cones 	<p>-</p>	

Learning Unit	Learning Objective	Time	Remarks
Primary 6			
6N1 Decimals (IV)	1. perform division of a number by 10, 100, 100 2. perform division of a number by 0.1, 0.01, 0.001 3. perform the division involving decimal(s) 4. perform mixed operations of not more than four numbers 5. solve problems	9.5	The number should be a whole number or a decimal. The number should be a whole number or a decimal. The decimals involved are confined to that of one decimal place or two decimal places. The division involving decimal(s) include: <ul style="list-style-type: none"> • decimal ÷ whole number • whole number ÷ whole number (the quotient is a decimal) • whole number ÷ decimal • decimal ÷ decimal The decimals involved are confined to that of one decimal place or two decimal places. Note: (for Learning Objectives 3 to 5) <ol style="list-style-type: none"> (i) Students can round off calculation results to the nearest tenth or hundredth. (ii) The calculation process should not involve numbers

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			<p>with more than 3 digit divided by numbers of 2 digit. For example, $12.34 \div 5.6$, $12.3 \div 0.45$ (= $1230 \div 45$), $123 \div 0.4$ (= $1230 \div 4$) are not required.</p> <p>(iii) Students are required to estimate the results of the calculations.</p>
<p>6N2 Decimals (V)</p>	<ol style="list-style-type: none"> 1. perform the interconversion between a decimal and a fraction 2. compare the magnitude fractions by converting them into decimals 	<p>4.5</p>	<p>Note:</p> <ol style="list-style-type: none"> (i) Students can round off calculation results to the nearest tenth or hundredth. (ii) Students are required to estimate the results of the calculations.
<p>6N3 Percentages (I)</p>	<ol style="list-style-type: none"> 1. recognise the concept of percentages 2. perform the interconversion between a percentage and a decimal 	<p>7</p>	<p>Teachers should use daily life examples to let students recognise the concept of percentages.</p> <p>Students are required to recognise the relation between percentages and fractions.</p>

Learning Unit	Learning Objective	Time	Remarks
	3. perform the interconversion between a percentage and a fraction		
<p>6N4 Percentages (II)</p>	1. solve simple problems	7	<p>Simple problems include:</p> <ul style="list-style-type: none"> • finding the percentage of two numbers • finding the new number with given percentage <p>Problems involving finding the original numbers are tackled in the Learning Unit 5A1 and 6A1, for example: If 75% of a number is 30, find this number.</p> <p>Solving complicated problems are not required. For example:</p> <ul style="list-style-type: none"> • discount • interest • find the percentage when comparing two numbers, or percentage increase or decrease of a number, for example: <ol style="list-style-type: none"> (i) A's weight is 100 kg and B's weight is 80 kg. Find the percentage by which B's weight is less than that of A? (ii) The original weight of John was 100 kg. He is 80 kg now. What is the percentage of decrease of his weight?

Learning Unit	Learning Objective	Time	Remarks
<p>6M1 Angle (degree)</p>	<ol style="list-style-type: none"> 1. recognise degree ($^{\circ}$) 2. measure and compare the sizes of angles in degree 3. draw angles of given sizes 	<p>4</p>	<p>Students are required to measure angles within 360° (0° and 360° are not required) using protractors.</p> <p>Students are required to name angles with the symbol “\sphericalangle”, such as $\sphericalangle A$ and $\sphericalangle ABC$.</p> <p>Students are required to recognise reflex angles, straight angles and full angles.</p> <p>Teachers should ask students to do estimations before taking measurements after they have acquired experience of measurement.</p> <p>Students are required to draw angles within 360° (0° and 360° are not required).</p>
<p>6M2 Volume (II)</p>	<ol style="list-style-type: none"> 1. recognise the relation between capacity and volume 2. find the volumes of irregular solids by the water displacement method 	<p>8</p>	<p>Students are required to recognise that m^3, cm^3, L and mL are units of volume of liquid.</p> <p>Students are required to find the volumes of irregular solids by using water tanks, measuring cups and overflow vessels.</p> <p>Note: Operations in this learning unit can involve more than three numbers.</p>

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<p>6M3 Perimeter (II)</p>	<ol style="list-style-type: none"> 1. recognise pi 2. recognise and use the formula for circumference 	<p>3.5</p>	<p>Students are required to recognise that pi can be represented by “π”.</p> <p>Students are required to:</p> <ul style="list-style-type: none"> • find the perimeters of circles, semicircles, quarter-circles and 2-D shapes built from them • find the radius and diameter of a circle from its circumference <p>Students are only required to use $\frac{22}{7}$ or 3.14 as approximate values of π for calculations.</p> <p>Finding the length of an arc given its angle subtended at the centre is not required.</p> <p>Note: Operations in this learning unit can involve more than three numbers.</p>
<p>6M4 Speed</p>	<ol style="list-style-type: none"> 1. perform the interconversion between units of time 2. solve problems related to time intervals 	<p>10</p>	<p>Students are only required to interconvert between hour and minute, minute and second, such as</p> <p>90 minutes = 1.5 hour / $1\frac{1}{2}$ hour, 180 seconds = 3 minutes.</p> <p>Given any two of the starting time, finishing time and time interval, students are required to find the unknown quantity/time.</p>

Learning Unit	Learning Objective	Time	Remarks
	<p>3. recognise the concept of speed</p> <p>4. compare intuitively the speed of objects</p> <p>5. compare directly the speed of objects</p> <p>6. compare the speed of objects in improvised units</p> <p>7. recognise metres per second (m/s) and kilometres per hour (km/h)</p> <p>8. interpret travel graphs</p> <p>9. solve problems related to speed</p>		<p>Problems on calculations involving hours, minutes and seconds at the same time are not required.</p> <p>Interconversion between metres per second and kilometres per hour is not required.</p> <p>Problems on chasing are not required.</p> <p>Operations can involve more than five numbers.</p> <p>Note: Teachers can consider using real-life examples or related learning elements in Science Education or Technology Education KLAs to enhance learning and teaching.</p>

Learning Unit	Learning Objective	Time	Remarks
			<p>Note: Operations in this learning unit can involve more than five numbers.</p>
<p>6S1 Symmetry</p>	<ol style="list-style-type: none"> 1. recognise the concept 2-D shapes having axial symmetry 2. draw and make axially symmetric 2-D shapes 	<p>4.5</p>	<p>Students are required to determine whether a shape is axially symmetric, and find the axes of the axially symmetric 2-D shapes.</p> <p>Students are required to recognise that squares, rectangles, isosceles triangles, equilateral triangles, rhombuses and circles are axially symmetric 2-D shapes.</p>
<p>6D1 Averages</p>	<ol style="list-style-type: none"> 1. recognise the concept of averages 2. find the averages of groups of data 3. solve problems 	<p>3.5</p>	<p>Teachers should explain the concept of averages by using statistical graphs.</p> <p>Students are required to estimate the results of the calculations and the averages of groups data from statistical graphs.</p> <p>Note: Operations in this learning unit can involve more than five numbers.</p>

Learning Unit	Learning Objective	Time	Remarks
<p>6D2 Broken line graphs</p>	<ol style="list-style-type: none"> 1. recognise broken line graphs 2. interpret broken line graphs 3. construct broken line graphs 	<p>4.5</p>	<p>Teachers can let students use IT to construct broken line graphs of greater frequency counts.</p> <p>Note: Teachers can consider using real-life examples or related learning elements in Science Education or Technology Education KLAs to enhance learning and teaching.</p>
<p>6D3 Pie charts</p>	<ol style="list-style-type: none"> 1. recognise pie charts 2. interpret pie charts 	<p>4</p>	<p>Students are only required to interpret pie charts involving simple calculations, such as the angle at the center of each sector is a multiple of 30° or 45°.</p> <p>Students are not required to measure the angles of the centre of a pie chart for calculations.</p> <p>Teachers can let students use IT to construct pie charts.</p>
<p>6D4 Uses and misuses of statistics</p>	<ol style="list-style-type: none"> 1. present the data with appropriate statistical charts or graphs 	<p>3</p>	<p>Teachers should discuss with students on choosing appropriate statistical charts or graphs from pictograms, bar charts, broken line graphs and pie charts for presenting data.</p>

Learning Unit	Learning Objective	Time	Remarks
	2. discuss and recognise the uses and abuses of statistical graphs in daily life		
6F1 Inquiry and investigation	Through various learning activities, discover and construct knowledge, further improve the ability to inquire, communicate, reason and conceptualise mathematical concepts	10	This is not an independent and isolated learning unit. The time is allocated for students to engage in learning activities from different learning units, for example, activities on enrichment topics, cross-learning unit activities, and cross-KLA activities that based on mathematical topics.
6E1 Rotational symmetry	1. recognise the concept of 2-D shapes having rotational symmetry 2. draw 2-D shapes having rotational symmetry	-	
6E2 Non-metric units	1. recognise the non-metric units in daily life 2. perform the interconversion between non-metric units and metric units	-	Non-metric units can include foot, inch, pound, catty and tael. Students can use calculators in conversion.

Grand Total : 285 hours