

CONTENTS

Forward	iii
How to use Maths Mate Skill Builders	iv
Letter to Parents (sample)	vi
Skill Builders	1
Glossary	313
Maths Facts	365
Symbols Number Facts Algebra Facts Measurement Facts Geometry Facts	
Answers	373

MM	SB	[Maths Mate - Mathematical strand]	
Question	Skill No.	Skill Builder - Skill description	
1.		[+ Whole Numbers to 10]	1
	1.1	Adding whole numbers from 1 to 10.	
	1.2	Adding whole numbers from 1 to 10 to negative numbers.	
2.		[- Whole Numbers to 10]	3
	2.1	Subtracting whole numbers from 1 to 10.	
	2.2	Subtracting whole numbers from 1 to 10 from negative numbers.	
3.		[× Whole Numbers to 12]	5
	3.1	Multiplying whole numbers from 1 to 12.	
	3.2	Multiplying whole numbers from 1 to 12 by negative numbers.	
4.		[÷ Whole Numbers to 12]	7
	4.1	Dividing whole numbers from 1 to 12.	
	4.2	Dividing whole numbers from 1 to 12 into negative numbers.	
5.		[Large Number +,-]	9
	5.1	Adding large numbers without carry over.	
	5.2	Subtracting large numbers without carry over.	
	5.3	Adding two large numbers with carry over.	
	5.4	Subtracting large numbers with carry over.	
	5.5	Adding and/or subtracting multiple large numbers with carry over.	
6.		[Large Number ×,÷]	15
	6.1	Multiplying a large number by a power of 10.	
	6.2	Dividing a large number by a power of 10.	
	6.3	Multiplying a large number by a single digit.	
	6.4	Dividing a large number by a single digit.	
	6.5	Multiplying a large number by a multiple of 10.	
	6.6	Dividing a large number by a multiple of 10.	
	6.7	Multiplying a large number by a two-digit number.	
	6.8	Dividing a large number by a two-digit number.	
	6.9	Multiplying a whole number by a large multiple of 10.	
	6.10	Dividing a whole number - answer as a terminating decimal.	
7.		[Decimal +,-]	27
	7.1	Adding decimal numbers.	
	7.2	Subtracting decimal numbers.	
	7.3	Subtracting a decimal number from a whole number.	

8.		[Decimal \times, \div] 33
	8.1	Multiplying a whole number by a decimal number.
	8.2	Dividing a decimal number by a whole number.
	8.3	Multiplying a decimal number by a decimal number.
	8.4	Dividing a decimal number by a decimal number.
	8.5	Dividing a whole number by a decimal number.
9.		[Fraction $+, -$] 39
	9.1	Adding fractions with the same denominator.
	9.2	Subtracting fractions with the same denominator.
	9.3	Adding mixed numbers with the same denominator.
	9.4	Subtracting mixed numbers with the same denominator.
	9.5	Subtracting a fraction or a mixed number from a whole number.
	9.6	Adding fractions with different denominators - one denominator divides evenly into the other denominator.
	9.7	Adding fractions with different denominators - the denominators have no common factors other than 1 (e.g. 5 and 6).
	9.8	Subtracting fractions with different denominators - one denominator divides evenly into the other denominator.
	9.9	Subtracting fractions with different denominators - the denominators have no common factors other than 1 (e.g. 5 and 6).
10.		[Fraction \times, \div] 53
	10.1	Multiplying a fraction by a whole number.
	10.2	Finding a fraction of a quantity.
	10.3	Dividing a whole number by a fraction.
	10.4	Multiplying two fractions.
	10.5	Dividing a fraction by a whole number.
	10.6	Dividing two fractions.
11.		[Percentages] 65
	11.1	Writing a number out of 100 as a percentage.
	11.2	Finding the remaining percentage.
	11.3	Finding a percentage of multiples of 100.
	11.4	Finding a percentage of any number.
	11.5	Working with percentages greater than 100%.
	11.6	Working with percentages to find discounts and sale prices.
	11.7	Writing one number as a percentage of another number.
	11.8	Calculating profit or loss as a percentage of the cost price.
12.		[Decimals / Fractions / Percentages] 75
	12.1	Illustrating fractions and percentages.
	12.2	Simplifying fractions.
	12.3	Finding equivalent fractions.
	12.4	Writing a decimal number as a percentage.
	12.5	Writing a percentage as a decimal number.
	12.6	Writing a decimal number as a fraction in simplest form.
	12.7	Writing a fraction as a terminating decimal.
	12.8	Writing a percentage as a fraction in simplest form.
	12.9	Writing a fraction as a percentage.
	12.10	Ordering decimal numbers.
	12.11	Comparing and ordering fractions.
	12.12	Converting between decimals, fractions and percentages.
	12.13	Comparing decimals, fractions and percentages.
13.		[Integers] 91
	13.1	Comparing and ordering integers.
	13.2	Comparing integers using 'less than' and 'greater than'.
	13.3	Modelling integer subtraction on a number line.
	13.4	Finding the difference between a positive and a negative integer.
	13.5	Modelling integer addition on a number line.
	13.6	Solving word problems involving two or more integers.
	13.7	Adding integers.
	13.8	Subtracting integers.
	13.9	Multiplying integers.
	13.10	Dividing integers.

14.	[Rates / Ratios]	103
14.1	Simplifying ratios by comparing two numbers.	
14.2	Simplifying ratios by comparing two quantities.	
14.3	Solving questions involving distance, time and speed.	
14.4	Simplifying ratios by comparing three numbers.	
14.5	Deciding if two ratios are equivalent.	
14.6	Completing equivalent ratios.	
14.7	Solving word problems involving equivalent ratios.	
14.8	Finding the ratio of two quantities.	
14.9	Finding other rates.	
15.	[Indices / Square Roots]	117
15.1	Expressing powers as products and products as powers.	
15.2	Squaring whole numbers.	
15.3	Calculating powers of 10.	
15.4	Finding square roots of whole numbers.	
15.5	Evaluating powers of whole numbers.	
15.6	Finding powers of negative whole numbers.	
16.	[Order of Operations]	123
16.1	Using 'order of operations' mixing only \times and/or \div , or $+$ and/or $-$	
16.2	Using 'order of operations' mixing \times , \div , $+$ and/or $-$	
16.3	Using 'order of operations' mixing () with $+$ and/or $-$	
16.4	Using 'order of operations' mixing (), \times , \div , $+$ and/or $-$	
16.5	Using 'order of operations' mixing powers, (), \times , \div , $+$ and/or $-$	
16.6	Using 'order of operations' involving negative numbers and mixing powers, (), \times , \div , $+$ and/or $-$	
16.7	Using 'order of operations' mixing square roots, powers, \times , \div , $+$ and/or $-$	
17.	[Exploring Number]	131
17.1	Comparing whole numbers.	
17.2	Understanding and finding the place value of a digit in a number.	
17.3	Writing word numbers as numerals.	
17.4	Writing whole numbers in words.	
17.5	Rounding whole numbers to a given place.	
17.6	Rounding decimal numbers to a given place.	
17.7	Recognising whole numbers and integers.	
17.8	Using inequality and equality signs to compare decimal numbers.	
18.	[Multiples / Factors / Primes]	141
18.1	Finding the multiples of a number.	
18.2	Finding the common multiples of two numbers.	
18.3	Finding the lowest common multiple (LCM) of two numbers.	
18.4	Finding the factors of a number.	
18.5	Finding the common factors of two numbers.	
18.6	Finding the highest common factor (HCF) of two numbers.	
18.7	Recognising prime and composite numbers.	
18.8	Expressing a number as a product of its prime factors using a factor tree.	
18.9	Expressing a number as a product of its prime factors using consecutive divisions.	
18.10	Expressing a number as a product of its prime factors using index notation.	
19.	[Number Patterns]	153
19.1	Completing number patterns by adding the same number.	
19.2	Completing number patterns by subtracting the same number.	
19.3	Completing number patterns by adding or subtracting decimal numbers.	
19.4	Completing number patterns in table format by adding the same number.	
19.5	Completing number patterns by multiplying by the same number.	
19.6	Completing number patterns by dividing by the same number.	
19.7	Completing number patterns by using changing values in the rule.	
19.8	Completing number patterns involving negative integers by adding or subtracting the same integer.	
19.9	Finding a term in a number pattern.	
19.10	Finding a particular term of a sequence given its general rule.	

MM Question	SB Skill No.	[Maths Mate - Mathematical strand] Skill Builder - Skill description	
20.		[Expressions]	165
	20.1	Simplifying expressions by adding and subtracting like terms (coefficient = 1).	
	20.2	Simplifying expressions by adding and subtracting like terms (coefficient ≥ 1).	
	20.3	Finding like terms.	
	20.4	Simplifying expressions by first grouping like terms.	
	20.5	Writing expressions to represent word problems.	
21.		[Substitution]	171
	21.1	Substituting one value into expressions involving + and –	
	21.2	Substituting one value into expressions involving \times and \div	
	21.3	Substituting one value into expressions involving +, –, \times and \div	
	21.4	Substituting negative values into expressions.	
	21.5	Substituting two values into expressions involving + and –	
	21.6	Substituting two values into expressions involving \times and \div	
	21.7	Substituting two values into expressions involving +, –, \times and \div	
	21.8	Substituting into expressions involving powers.	
	21.9	Substituting into expressions with brackets.	
	21.10	Substituting into formulae.	
22.		[Equations]	181
	22.1	Finding the missing number in equations involving + and –	
	22.2	Finding the missing number in equations involving \times	
	22.3	Finding the missing number in equations involving fractions.	
	22.4	Finding the missing number in equations involving +, –, \times and/or brackets.	
	22.5	Finding the missing number in equations involving decimals.	
	22.6	Solving one-step equations by using the inverse operations of + and –	
	22.7	Solving one-step equations by using the inverse operations of \times and \div	
	22.8	Solving two-step equations by using the inverse operations of +, –, \times and \div	
23.		[Coordinates]	197
	23.1	Describing the position of ordered pairs on a Cartesian plane.	
	23.2	Using grid references to describe location on a map.	
	23.3	Using coordinates to describe location on a map.	
	23.4	Finding the coordinates of a point on a Cartesian plane.	
	23.5	Plotting ordered pairs on a Cartesian plane.	
	23.6	Writing linear expressions to represent real-life situations.	
	23.7	Completing a table of values for a linear rule.	
	23.8	Graphing linear functions on a Cartesian plane.	
	23.9	Using coordinates to visualise and draw transformations of two-dimensional shapes on a Cartesian plane.	
	23.10	Plotting points from a table of values on a Cartesian plane.	
24.		[Units of Measurement / Time]	213
	24.1	Converting units of time.	
	24.2	Converting units of length.	
	24.3	Converting units of mass.	
	24.4	Converting units of capacity.	
	24.5	Converting units of time, length, mass and capacity by using real-life facts.	
	24.6	Finding the elapsed time between two events.	
	24.7	Using time zones to calculate durations.	
25.		[Perimeter]	223
	25.1	Finding the perimeter of polygons by measuring their side lengths.	
	25.2	Calculating the perimeter of polygons when all side lengths are given.	
	25.3	Calculating the perimeter of polygons by recognising congruent sides.	
	25.4	Calculating the perimeter of polygons using real-life examples.	
	25.5	Calculating the perimeter of polygons using unit conversions.	
	25.6	Calculating an unknown side length when the perimeter of a polygon is given.	
	25.7	Calculating the circumference of circles.	
	25.8	Calculating the perimeter of composite shapes.	

26.		[Area / Volume]	233
	26.1	Calculating the area of polygons by counting squares and triangles on a square grid.	
	26.2	Comparing the area of polygons on a square grid.	
	26.3	Estimating the area of irregular shapes on a square grid.	
	26.4	Calculating the area of squares, rectangles and parallelograms.	
	26.5	Calculating the area of triangles.	
	26.6	Calculating the volume of rectangular prisms by counting cubes.	
	26.7	Calculating the volume of square and rectangular prisms.	
	26.8	Calculating the area of composite shapes.	
	26.9	Calculating the area of trapeziums and rhombii.	
	26.10	Calculating the area of circles and composite circular shapes.	
	26.11	Calculating the volume of any prism.	
27.		[Shapes]	251
	27.1	Measuring angles using a protractor.	
	27.2	Estimating the size of angles.	
	27.3	Recognising polygons and quadrilaterals.	
	27.4	Classifying and describing the properties of quadrilaterals.	
	27.5	Drawing lines and polygons.	
	27.6	Classifying and describing the properties of 3D shapes.	
	27.7	Classifying angles.	
	27.8	Classifying and describing the properties of triangles.	
	27.9	Working with vertically opposite angles and complementary angles.	
	27.10	Working with supplementary angles.	
	27.11	Finding the size of angles inside a triangle.	
	27.12	Finding the size of angles inside a quadrilateral.	
	27.13	Describing the properties of circles.	
28.		[Exploring Geometry]	267
	28.1	Following directions and using compass bearings to describe location on a map.	
	28.2	Identifying and classifying symmetry in two-dimensional shapes.	
	28.3	Using a scale to calculate distance on a map.	
	28.4	Recognising basic transformations of two-dimensional shapes.	
	28.5	Drawing translations, reflections and rotations of objects on a grid.	
	28.6	Recognising nets of three-dimensional shapes.	
	28.7	Drawing the top, side and front views of three-dimensional shapes.	
	28.8	Recognising the shapes of cross sections through three-dimensional shapes.	
	28.9	Recognising congruence in two-dimensional shapes.	
	28.10	Recognising rotational symmetry in two-dimensional shapes.	
29.		[Statistics]	279
	29.1	Interpreting dot plots.	
	29.2	Interpreting pictograms.	
	29.3	Interpreting tables.	
	29.4	Interpreting bar graphs.	
	29.5	Interpreting stack graphs.	
	29.6	Calculating the mean and median of sets of data.	
	29.7	Calculating the mode and range of sets of data.	
	29.8	Interpreting line graphs.	
	29.9	Interpreting pie charts.	
	29.10	Interpreting stem-and-leaf plots.	
	29.11	Interpreting step graphs, histograms and scatter plots.	
30.		[Probability]	297
	30.1	Describing the degree of likelihood of an event.	
	30.2	Recognising the likelihood of an event.	
	30.3	Finding the possible outcomes (sample spaces) of an event by completing tables.	
	30.4	Finding the possible outcomes (sample spaces) of an event by completing tree diagrams.	
	30.5	Calculating the probability of a simple event.	
	30.6	Calculating the probability of a simple event using probability scales.	
	30.7	Interpreting Venn diagrams.	
	30.8	Calculating the probability of complementary events.	
	30.9	Calculating the probability of mutually exclusive events.	
	30.10	Finding the possible outcomes of an event by applying the counting principle.	