

Mount Biggs School- Numeracy Strategy Progression Years 1 - 4

After 1 year at school CA Stage 3 Towards Level 1	After 2 years at school AC Stage 4 Level 1	After 3 years at school EA Early Stage 5 Level 2	End of Year 4 EA Stage 5 Level 2
Add/ Sub	Add/ Sub	Add/ Sub	Add/ Sub
Apply counting-all strategies. Stage 2 with materials. Stage 3 by imaging.	Apply counting-on, counting-back, skip counting, and simple grouping strategies to combine or partition whole numbers. Use equal sharing and symmetry to find fractions of sets, shapes, and quantities.	Apply counting-on, counting-back, skip counting, and simple grouping strategies to combine or partition whole numbers. Use equal sharing and symmetry to find fractions of sets, shapes, and quantities.	Apply basic addition and subtraction facts, simple multiplication facts, and knowledge of place value and symmetry to: combine or partition whole numbers and find fractions of sets, shapes, and quantities.
Solves add/sub problems by counting all from one by imaging.	Solves add/sub problems by counting on & counting back.	Uses limited strategies to solve add/sub problems..	Uses limited strategies to solve add/sub problems.
Strategies 1) Counting all E.g. $3 + 6 = ?$ Counts all the items from one by imaging.	Strategies 1) Counting on E.g. $8 + 5 = ?$ Solved by counting on from 8: 9, 10, 11, 12, 13 This can be done on fingers. Child does not have to image the counting on to be Stage 4. 2) Counting Back E.g. $52 - 4 = ?$ Solved by counting back from 52: 51, 50, 49, 48	Strategies 1) Using Doubles E.g. $8 + 7 = ?$ Solved as $8 + 8 - 1$ or $7 + 7 + 1$ 2) Using Fives E.g. $8 + 7 = ?$ Solved by $(5 + 3) + (5 + 2)$ 3) Making up to a ten E.g. $8 + 7 = ?$ Solved as $10 + 7 - 2$ 5) Back through ten E.g. $84 - 4 = ?$ $84 - 4 = 80$, $80 - 4 = 76$ 6) Repeated subtraction in 10s E.g. $57 - 25 = ?$ $57 - 10 = 47$, $47 - 10 = 37$, $37 - 5 = 32$ 7) Mix of counting and part-whole E.g. $57 - 25 = ?$ $25 + 5 = 30$; $30 + 10 = 40$; $40 + 10 = 50$; 51, 52, ..., 56, 57	Strategies 1) Rounding and Compensation E.g. $67 + 6 = ?$ $\begin{array}{r} -4 \quad \downarrow \quad +4 \\ 67 + 6 = 73 \end{array}$ 2) Equal Addition E.g. $53 - 8 = ?$ $\begin{array}{r} +2 \quad \downarrow \quad \downarrow \quad +02 \\ 55 - 10 = 45 \end{array}$ 4) Place value partitioning (addition) E.g. $43 + 5 = ?$ s $(40 + 20) + (3 + 5)$ Adding ones and tens separately. 5) Place value partitioning (subtraction) E.g. $57 - 25 = ?$ $(50 - 20) + (7 - 5) = 32$

Mount Biggs School- Numeracy Strategy Progression Years 1 - 4

After 1 year at school CA Stage 3 Towards Level 1	After 2 years at school AC Stage 4 Level 1	After 3 years at school EA Stage 5 Level 2	End of Year 4 EA Stage 5 Level 2
Mult/Div	Mult/Div	Mult/Div	Mult/Div
Apply counting-all strategies. Stage 2 with materials. Stage 3 by imaging.	Apply counting-on, counting-back, skip counting, and simple grouping strategies to combine or partition whole numbers. Use equal sharing and symmetry to find fractions of sets, shapes, and quantities.	Apply counting-on, counting-back, skip counting, and simple grouping strategies to combine or partition whole numbers. Use equal sharing and symmetry to find fractions of sets, shapes, and quantities.	Apply basic addition and subtraction facts, simple multiplication facts, and knowledge of place value and symmetry to: combine or partition whole numbers and find fractions of sets, shapes, and quantities.
Solve mult/div problems by counting all the objects from one by imaging.	Solves mult/div problems using skip counting	Solves mult/div problems using repeated addition/subtraction.	Solves mult/div problems using repeated addition and subtraction combined with some knowledge of times tables (2x, 5x, 10x).
Strategies 1) Counting All E.g. There are 5 cups in each row. Sweep one row with your finger. There are 6 rows of cups. (Point to each row one by one). How many cups are there altogether? Solved by student counting all from one by imaging.	Strategies 1) Skip Counting E.g. $4 \times 5 = ?$ Solved as 5, 10, 15, 20 E.g. $25 \div 5 = ?$ 25, 20, 15, 10, 5 Answer: 5	Strategies 1) Repeated Addition E.g. $4 \times 6 = ?$ Solved as $6 + 6 + 6 + 6 = 24$ E.g. $20 \div 2 = ?$ $10 + 10 = 20$ 2) Repeated Subtraction (1 digit numberse) $20 \div 4 = ?$ Number of times you subtract 4 to get back to 0 $20 - 4 - 4 - 4 - 4 = 0$ Answer: 5	Strategies 1) Repeated addition (doubling additively) E.g. $14 \times 4 = ?$ $(14 + 14) + (14 + 14) = 56$ 28 28 E.g. $20 \div 4 = ?$ Solved using knowledge $5 + 5 = 10$ and $10 + 10 = 20$ 2) Repeated Subtraction (2 digit numbers) $60 \div 15 =$ Number of times you subtract 15 to get back to 0. $60 - 15 - 15 - 15 - 15 = 0$ Answer: 4 3) Mult with 2x, 5x & 10x $8 \times 5 = 40$ solved using no strategy, just knowledge of 2x, 5x & 10x tables. 4) Reversibility $40 \div 8 = ?$ $5 \times \underline{\quad} = 40$ Used knowledge of 2x, 5x & 10x tables.

Mount Biggs School- Numeracy Strategy Progression Years 1 - 4

After 1 year at school CA Stage 3 Towards Level 1	After 2 years at school AC Stage 4 Level 1	After 3 years at school EA Early Stage 5 Level 2	End of Year 4 EA Stage 5 Level 2
Ratios/Prop	Ratios/Prop	Ratios/Prop	Ratios/Prop
Apply counting-all strategies. Stage 2 with materials. Stage 3 by imaging.	Apply counting-on, counting-back, skip counting, and simple grouping strategies to combine or partition whole numbers. Use equal sharing and symmetry to find fractions of sets, shapes, and quantities.	Apply counting-on, counting-back, skip counting, and simple grouping strategies to combine or partition whole numbers. Use equal sharing and symmetry to find fractions of sets, shapes, and quantities.	Apply basic addition and subtraction facts, simple multiplication facts, and knowledge of place value and symmetry to: combine or partition whole numbers and find fractions of sets, shapes, and quantities.
Share a region or set into given equal parts by imaging the materials and counting from one.	Share a region or set into given equal parts by imaging the materials.	Finds a fraction of a number by using addition facts.	Finds a fraction of a number and solves division problems with remainders using halving or deriving addition facts.
<p>Strategies: Equal sharing/ counting from one E.g. There are three kete with three kumara in each. How many are there all together?</p> <p>The student counts all the objects from 1. They may image the kumara or use fingers or counters.</p>	<p>Strategies: Equal sharing E.g. There are 12 sausages to share between 2 dogs. If each dog gets the same amount of sausages, how many will each dog get?</p> <p>2 sausages- 1 each 4 sausages- 2 each 12 sausages- 6 each (might use fingers to keep track)</p> <p>OR</p> <p>Split 12 in half into 6 and 6</p>	<p>Strategies: Find a fraction of a number using addition facts E.g. $\frac{1}{3}$ of 12 $4 + 4 + 4 = 12$</p> <p>E.g. There are 12 sausages to share between 3 dogs. If each dog gets the same amount of sausages, how many will each dog get?</p> <p>$5 + 5 + 2 = 12$, so $4 + 4 + 4 = 12$</p> <p>OR</p> <p>$6 + 6 = 12$, so $4 + 4 + 4 = 12$</p> <p>OR</p> <p>$2 + 2 + 2 = 6$, so $4 + 4 + 4 = 12$</p>	<p>Strategies: Find a fraction of a number by using halving E.g. There are 24 marbles in a bag to share with 4 people. How much will each person get? $\frac{1}{2}$ of 24 = 12 And $\frac{1}{2}$ of 12 = 6</p> <p>OR</p> <p>Find a fraction of a number using addition facts</p> <p>$5 + 5 + 5 + 5 = 20$ So $6 + 6 + 6 + 6 = 24$</p>

Mount Biggs School- Numeracy Knowledge Progression Years 1 - 4

After 1 year at school CA Stage 3 Towards Level 1	After 2 years at school AC Stage 4 Level 1	After 3 years at school EA Early Stage 5 Level 2	End of Year 4 EA Stage 5 Level 2
Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts	Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts	Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts	Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts
<p>Stage 2/3 Knowledge Focus The response to these must be instant (3 seconds or less).</p> <ul style="list-style-type: none"> • Finger patterns to 5 • Dice patterns to 6 (using dots) • Finger patterns to 10 • Tens frame patterns to 10 • Addition facts within 5 • Addition facts with 5 • Addition facts with 5 (the 5 and facts) • Doubles to 5 	<p>Stage 4 Knowledge Focus The response to these must be instant (3 seconds or less).</p> <ul style="list-style-type: none"> • Ten plus facts (ten and facts) • Doubles to 10 + 10 • Halve facts up to 20 • Pairs to ten • Addition facts up to ten • Subtraction facts up to 10 	<p>Stage 5 Knowledge Focus The response to these must be instant (3 seconds or less).</p> <ul style="list-style-type: none"> • Addition facts to 20 • Number bonds to 20 • Subtraction Facts up to 10 • Multiplication facts for 2 • Multiplication facts for 5 • Addition facts to 10 where a number is missing in the beginning or middle • Bonds (of 100s) that make 1000 • Round 3 digit numbers to nearest 10s and 100s • Recall groupings of numbers; How many 2s are in numbers up to 20 • Recall groupings of numbers; How many 5s are in numbers up to 50 • Recall groupings of numbers; How many 10s are in numbers up to 100 • Recall groupings of numbers; How many 100s are in numbers up to 1000 	

Mount Biggs School- Numeracy Knowledge Progression Years 5 - 8

End of Year 5 AA Stage 6 Towards Level 3	End of Year 6 AA Stage 6 Level 3	End of Year 7 AM Stage 7 Towards Level 4	End of Year 8 Level 4 AM Stage 7 Level 4
Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts	Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts	Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts	Number Identification Number Sequence and Order Grouping/ Place Value Basic Facts
<p>Stage 6 Knowledge Focus The response to these must be instant (3 seconds or less).</p> <ul style="list-style-type: none"> Recall all addition and subtraction facts in any format to 20 Recall all multiplication facts to 10 x 10 Recall division facts by 3 & 4 Recall multiplication facts of 10, 100 & 1000 Work out how many groups (like division) with remainders (extras left over) Round numbers to the nearest whole number Recall how many tenths it takes to make a number Recall number bonds that make 100 & 1000 		<p>Stage 7a Knowledge Focus The response to these must be instant (3 seconds or less).</p> <ul style="list-style-type: none"> Multiplication and division facts to 12 Recall Factors to 100 Recall common multiples of numbers up to 10 Recall primes to 100 Recall fraction, decimal and percentage conversions for $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{10}$ Recall square roots to 100 <p>Stage 7b Knowledge Focus The response to these must be instant (3 seconds or less).</p> <ul style="list-style-type: none"> Recall the groupings that make up numbers (with 2 decimal places). Round decimals to tenths ($\frac{1}{10}$ or 0.1) and whole numbers Count on and back in 10ths and 100ths (0.1s and 0.01s) Equivalent fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$., $\frac{1}{5}$, $\frac{1}{10}$ Add and subtract negative numbers in the range of -10 to +10 	

Mount Biggs School- Numeracy Strategy Progression Years 5 - 8

End of Year 5 AA Stage 6 Towards Level 3	End of Year 6 AA Stage 6 Level 3	End of Year 7 AM Stage 7 Towards Level 4	End of Year 8 Level 4 AM Stage 7 Level 4
Add/ Sub	Add/ Sub	Add/ Sub	Add/ Sub
Apply additive and simple multiplicative strategies and knowledge of symmetry to combine or partition whole numbers. Find fractions of sets, shapes, and quantities.	Apply additive and simple multiplicative strategies flexibly to combine or partition whole numbers, including performing mixed operations and using addition and subtraction as inverse operations. Find fractions of sets, shapes, and quantities.	Apply additive and multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including percentages). Apply additive strategies to decimals; balance positive and negative amounts.	Apply multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including decimals and percentages). Use multiplication and division as inverse operations on whole numbers. Apply additive strategies flexibly to decimals and integers.
Add/sub using 2 part whole mental strategies. (2 digit numbers)	Add/sub using 2 part whole mental strategies. (3 digit numbers)	Add and subtract decimals (1 d.p.) and integers using at least 2 advanced mental strategies.	Add and subtract decimals (2 d.p.) and integers using at least 2 advanced mental strategies.
Strategies 1) Rounding and Compensation E.g. $67 + 46 = ?$ $\begin{array}{r} -4 \quad \quad \quad +4 \\ \downarrow \quad \quad \downarrow \\ 63 + 50 = 113 \end{array}$ 2) Equal Additions E.g. $53 - 28 = ?$ $\begin{array}{r} +2 \quad \quad \quad +02 \\ \downarrow \quad \quad \downarrow \\ 55 - 30 = 85 \end{array}$ 3) Reversibility $85 - 38 = \underline{\quad}$ $38 + \underline{\quad} = 85$ 4) Add and subtract by adjusting one number to the nearest 100. E.g. $56 + 98 = ?$ $56 + 100 = 156$ $156 - 3 = 154$ E.g. $63 - 39 = ?$ $63 - 40 = 23$ $23 - 1 = 22$ 5) Place value partitioning E.g. $\underline{\quad} + 26 = 86$ $(80 - 20) + (6 - 6) = 60 + 0 = 60$	Strategies 1) Rounding and Compensation E.g. $167 + 46 = ?$ $\begin{array}{r} -4 \quad \quad \quad +4 \\ \downarrow \quad \quad \downarrow \\ 163 + 50 = 113 \end{array}$ 2) Equal Additions E.g. $153 - 28 = ?$ $\begin{array}{r} +2 \quad \quad \quad +2 \\ \downarrow \quad \quad \downarrow \\ 155 - 30 = 125 \end{array}$ 3) Algorithm $\begin{array}{r} 464 \qquad \qquad 654 \\ + 277 \qquad \qquad - 388 \\ \hline 741 \qquad \qquad 266 \end{array}$ 4) Using tidy numbers E.g. $567 + \underline{\quad} = 800$ $+ 3 = 570$ $+ 30 = 600$ $+ 200 = 800$ Answer: 233 5) Reversibility $285 - 38 = ?$ $38 + \underline{\quad} = 285$	Strategies 1) Rounding and Compensation E.g. $6.7 + 4.4 = ?$ $\begin{array}{r} +0.4 \quad \quad \quad -0.4 \\ \downarrow \quad \quad \downarrow \\ 7.1 + 4 = 11.1 \end{array}$ 2) Equal Additions E.g. $5.3 - 2.8 = ?$ $\begin{array}{r} +0.2 \quad \quad \quad +0.2 \\ \downarrow \quad \quad \downarrow \\ 5.5 - 3 = 2.5 \end{array}$ 3) Algorithm $\begin{array}{r} 4.64 \qquad \qquad 6.54 \\ + 2.77 \qquad \qquad - 3.88 \\ \hline 7.41 \qquad \qquad 2.66 \end{array}$ 5) Add integers $6 + -2 = ?$ $-5 + 6 = ?$	Strategies 1) Rounding and Compensation E.g. $3.98 + 4.43 = ?$ $\begin{array}{r} +0.43 \quad \quad \quad -0.43 \\ \downarrow \quad \quad \downarrow \\ 4.41 + 4 = 8.81 \end{array}$ 2) Equal Additions E.g. $5.32 - 2.89 = ?$ $\begin{array}{r} +0.11 \quad \quad \quad +0.11 \\ \downarrow \quad \quad \downarrow \\ 5.43 - 3 = 2.43 \end{array}$ 3) Adding and Subtracting Integers Students can explain the rules for adding and subtracting integers. $-6 - 4 = ?$ $5 - -3 = ?$

Mount Biggs School- Numeracy Strategy Progression Years 5 - 8

End of Year 5 AA Stage 6 Towards Level 3	End of Year 6 AA Stage 6 Level 3	End of Year 7 AM Stage 7 Towards Level 4	End of Year 8 Level 4 AM Stage 7 Level 4
Mult/div	Mult/div	Mult/div	Mult/div
Apply additive and simple multiplicative strategies and knowledge of symmetry to combine or partition whole numbers. Find fractions of sets, shapes, and quantities.	Apply additive and simple multiplicative strategies flexibly to combine or partition whole numbers, including performing mixed operations and using addition and subtraction as inverse operations. Find fractions of sets, shapes, and quantities.	Apply additive and multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including percentages). Apply additive strategies to decimals; balance positive and negative amounts.	Apply multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including decimals and percentages). Use multiplication and division as inverse operations on whole numbers. Apply additive strategies flexibly to decimals and integers.
Uses some known times tables to solve mult/div problems 2x, 3x, 4x, 5x, 10x	Uses timetables up to 10 x 10 to solve mult/ div problems.	Uses at least 2 advanced mental strategies to solve mult/div problems.	Uses at least 2 advanced mental strategies to solve mult/div problems.
Strategies 1) Deriving known times tables E.g. $8 \times 6 = ?$ $(8 \times 5) + (8 \times 1)$ $\begin{array}{r} 40 \\ + 8 \\ \hline \end{array}$ 2) Rounding and Compensation E.g. $9 \times 6 = ?$ $(10 \times 6) - 6 = 54$ 2) Proportional Adjustment E.g. $4 \times 7 = ?$ Double 2×7 3) Reversibility E.g. $36 \div 4 = ?$ $4 \times 9 = 36$ Student knows 2x, 3x, 4x, 5x & 10x	Strategies 1) Mult with basic facts $8 \times 9 = 72$ solved using no strategy, just knowledge. Stage 6 students know all their times tables up to 10×10 . 2) Proportional Adjustment E.g. $5 \times 8 = 40$ so $5 \times 16 = 80$ 3) Reversibility E.g. $63 \div 9 =$ $9 \times 7 = 63$	Strategies 1) Division with basic facts $72 \div 9 = 8$ solved using no strategy, just knowledge. Algorithm for division 2 or 3 digits \div 1 digit $\begin{array}{r} 66 \\ 4 \overline{) 264} \end{array}$ 2) Algorithm for multiplication E.g. 63 $\begin{array}{r} \times 6 \\ 378 \end{array}$ 1) Place Value E.g. $36 \times 7 =$ $(30 \times 7) + (6 \times 7) =$ $210 + 42 = 252$ 2) Proportional Adjustment E.g. $6 \times 8 = 48$ so $6 \times 16 = 96$ 5) Rounding & Compensation E.g. $4 \times 38 =$ $(4 \times 40) - (4 \times 2) =$ $160 - 8 = 152$	Strategies 1) Algorithm for division. Turn remainders into a decimal. 2 or 3 digits \div 1 digit $\begin{array}{r} 76.8 \\ 5 \overline{) 384} \end{array}$ 2) Algorithm for multiplication E.g. 45 $\begin{array}{r} \times 24 \\ 180 \\ \underline{900} \\ 1080 \end{array}$ 3) Place Value E.g. $364 \times 7 =$ $(300 \times 7) + (60 \times 7) + (4 \times 7) =$ $2100 + 420 + 28 = 2548$ 4) Proportional Adjustment E.g. $365 \times 50 =$ $\frac{1}{2} (365 \times 100) = 18250$ E.g. $72 \div 9 = 8$ so $72 \div 18 = 4$ 5) Divisibility rules E.g. $201 \div 3 = ?$ $100 \div 3 = 33 \text{ r } 1, 200 \div 3 = 66 \text{ r } 2, 201 \div 3 = 67$

Mount Biggs School- Numeracy Strategy Progression Years 5 - 8

End of Year 5 AA Stage 6 Towards Level 3	End of Year 6 AA Stage 6 Level 3	End of Year 7 AM Stage 7 Towards Level 4	End of Year 8 Level 4 AM Stage 7 Level 4
Ratios/ Prop	Ratios/ Prop	Ratios/ Prop	Ratios/ Prop
Apply additive and simple multiplicative strategies and knowledge of symmetry to combine or partition whole numbers. Find fractions of sets, shapes, and quantities.	Apply additive and simple multiplicative strategies flexibly to combine or partition whole numbers, including performing mixed operations and using addition and subtraction as inverse operations. Find fractions of sets, shapes, and quantities.	Apply additive and multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including percentages). Apply additive strategies to decimals; balance positive and negative amounts.	Apply multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including decimals and percentages). Use multiplication and division as inverse operations on whole numbers. Apply additive strategies flexibly to decimals and integers.
Use addition and multiplication facts. Knows 2x, 3x, 4x, 5x, 10x tables	Use repeated halving, or known multiplication facts to find a fraction of a set or region, name improper fractions and division with remainders. Knows all times tables up to 10 x 10.	Use range of multiplication and division strategies to solve problems with fractions, proportions and ratios.	Use range of multiplication and division strategies to solve problems with fractions, proportions and ratios.
Examples 1) Find a fraction of a number using multiplication, division and addition facts. E.g. $\frac{1}{3}$ of 36 = ? $3 \times 10 = 30$, $36 - 20 = 6$, $6 \div 3 = 2$, $10 + 2 = 12$ OR $\frac{1}{4}$ of 28 $7 + 7 = 14$, $14 \times 2 = 28$	Strategies 1) Find a fraction of a number by repeated halving. E.g. $\frac{1}{4}$ of 80 = ? $\frac{1}{2}$ of 80 = 40, $\frac{1}{2}$ of 40 = 20 2) Find a fraction of a number using multiplication E.g. $\frac{1}{6}$ of 42 = ? $6 \times 7 = 42$ 2) Convert between improper fractions and mixed numeral fractions using multiplication facts. E.g. $\frac{16}{3} = ?$ $5 \times 3 = 15$ $\frac{16}{3} = 5$ and $\frac{1}{3}$ 3) Sharing with remainders E.g. 8 pies shared among 3 people ($8 \div 3$). Give each person 2 pies and split the remaining 2 pies into thirds. $2 + \frac{1}{3} + \frac{1}{3} = 2$ and $\frac{2}{3}$. 4) Ratios using repeated replication $2:3 = 4:6 = 8:12$	Strategies 1) Converting improper fractions to mixed numeral fractions (and vice versa) E.g. $11 \div 3 = 11/3 = 3$ and $2/3$ 2) Converting a fraction into a division problem E.g. $\frac{13}{5} = 13 \div 5$ $13 \div 5 = (10 \div 5) + (3 \div 5) = 2$ and $3/5$ 3) Find fraction and, decimal and percentage conversions. E.g. $\frac{3}{4} = 75/100 = 0.75 = 75\%$ 4) Find a fraction of a number using division. E.g. $\frac{1}{7}$ of 28 $28 \div 7 = 4$	Strategies 1) Use multiplication to identify equivalent fractions. E.g. $\frac{3}{5} = \frac{15}{25}$ Because $3 \times 5 = 15$ $5 \times 5 = 25$ 2) Use division to reduce a fraction to its smallest form (simplify). E.g. $\frac{15}{20} = \frac{3}{4}$ Because $15 \div 5 = 3$ $20 \div 5 = 4$ 3) Use multiplication or division to convert ratios. E.g. 3:5 as ___ : 40 $8 \times 5 = 40$, $8 \times 3 = 24$ Answer- 24:40 4) Find a fraction of a number using multiplication and division. $\frac{5}{6}$ of 24 = ? $\frac{1}{6}$ of 24 = $24 \div 6 = 4$ $5 \times 4 = 20$

Mount Biggs School- Number Progression Years 9-11

Year 9 WALT.....	Year 10 WALT.....	Year 11 WALT.....
<ul style="list-style-type: none"> • Write whole numbers in compact and expanded form • Add and subtract large numbers using a range of strategies • Multiply whole numbers e.g. $72 \times 15 \times 20 =$ • Expand brackets • Divide whole numbers $39\ 732 \div 33$ • Work out Factorials and powers of whole numbers • Find square roots of numbers (3 and 4 digit numbers) • Use the order of operations to simplify equations. • Compare and order integers • Add and subtract integers • Multiply and divide integers • Use BEDMAS to solve complex problems with integers. • Share using fractions • Find and simplify equivalent fractions • Change between improper fractions and mixed numeral fractions • Order and compare fractions • Find a fraction of a whole number • Find a whole number when a fraction is known • Find a fraction of a fraction or decimal • Multiply fractions • Add and subtract fractions • Find equivalent ratios and simplify • Express rates in their simplest form • Solve fraction, ratio and rate problems • Convert decimal fractions to decimals • Multiply and divide decimals by powers of 10 • Convert decimals to and from fractions • Add and subtract decimals (greater than 2dp) • Multiply and divide decimals by whole numbers • Multiply and divide decimals by decimals • Round decimals • Convert fractions to percentages and vice versa • Express one quantity as a percentage of another • Find a percentage of a quantity • Find the whole quantity if a percentage is known • Increase or decrease by a percentage • Solve mixed percentage problems 	<ul style="list-style-type: none"> • Find multiples of a number • Find the LCM (lowest common multiple) in a practical problem. • Find factors of numbers • Find the HCF (highest common factor) • Identify and use divisibility rules for 2, 3, 4, 5, 6, 8, 9, 10 and 100. • Identify prime and composite numbers • Use prime factorisation to express a number as a product of its prime factors. • Evaluate power numbers in index form • Find square and cube roots of numbers • Order integers • Use BEDMAS to solve complex problems with integers. • Solve word problems involving integers. • Write a decimal number in compact and expanded form. • Compare sizes of decimals • Round decimals using significant figures (sf) • Calculate complex problems with decimals using the order of operations. • Estimate answers by rounding to 1 sf • Write standard form numbers as ordinary numbers • Solve problems with numbers in standard form • Solve problems involving fractions • Compare the sizes of fractions • Add, subtract, multiply and divide fractions • Share a quantity in ratio • Express rates in simplest form. • Express one quantity as a percentage of another • Find a percentage of a quantity • Find the whole quantity if a percentage is known • Increase or decrease by a percentage • Solve inverse percentage increase/decrease problems • Solve problems involving GST • Use percentages in a commercial application 	<ul style="list-style-type: none"> • Identify factors, primes and multiples • Solve problems with integers • Simplify expressions with several operations using BEDMAS • Use the laws of indices, find the definitions integer powers • Evaluate powers • Find the nth root of a number • Use the laws of indices to evaluate numbers to a fractional power. • Use prime factorisation to simplify fractions • Simplify and compare fractions • Add, subtract, multiply and divide fractions • Simplify fractions with several operations using BEDMAS • Simplify ratios with quantities in different units • Solve rate problems. • Convert rates to a different unit. • Solve problems with direct linear proportions • Solve problems with inverse proportion • Convert decimals to fractions and vice versa • Round to a given number of significant figures • Write standard form numbers as ordinary numbers • Solve problems with numbers in standard form • Express one quantity as a percentage of another • Find a percentage of a quantity • Find the whole quantity if a percentage is known • Increase or decrease by a percentage • Find the original amount after a percentage increase or decrease. • Solve problems involving GST • Solve percentage problems in context.