Mathletics 3P Learning Progressions Skill Quests







May, 2022

Mathletics

3P Learning Progressions Skill Quests May 2022

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Part I Grade 3

1 Number

Number and place value			
	0	Numbers up to 4 digits	
Reading and writing numbers up to 4 digits	1	1Reading and writing 4-digit num- bers using words and numerals	 write a given 4-digit number in words, eg 4567 as four thousand, four hundred and sixty-seven
			• write the numerals for a 4-digit number given in words
	2	Representing 4-digit numbers us- ing words, numerals and objects	 model a given 4-digit number using concrete materials, pictures or draw- ings
			• write the numerals in words, eg 'seven thousand, three hundred and fifty-three' for a 4-digit number rep- resented using place value equip- ment or using pictures, drawings
Place value up to 4 digit numbers	1	Identifying numbers before and after up to 4-digit numbers (within 10 000)	• identify the number that comes be- fore a given 2-, 3- or 4-digit number up to 10 000; describe this number as 'one more than'
			• identify the number that comes af- ter a given 2-, 3- or 4-digit number up to 10 000; describe this number as 'one less than'
			• identify the number that comes be- fore or after a given 2-, 3- or 4-digit number up to 10 000; describe this number as 'one more than' or 'one less than'
	2	Identifying the place value of dig- its in 4-digit numbers	• write the numeral for a 4-digit number modelled using place value equipment
			 identify the digit in the thousands, hundreds, tens or ones column for a given 4-digit number
			• identify, record and model a number using place value clues, eg 'an 8 in the thousands, 5 in the hundreds and a 2 in the ones' as 8502
			• recognise the role of zero as a placeholder
			• create the smallest and largest numbers possible using 4 digits
Comparing and ordering numbers to 4 digits	1	Comparing numbers to 10 000 using models and inequality sym- bols	 model and compare two 4-digit numbers using place value equip- ment

Learning Journey	Steps	Content	Details
			• compare two numbers of up to 4 digits and describe using the terms and symbols: greater than (>) or less than (<); explain the comparison us- ing place value reasoning
	2	Ordering numbers to 10 000	• order up to 4 consecutive 2-digit, 3-digit or 4-digit numbers within 10 000 in ascending order or descend- ing order; explain the reason for the order given
			• order up to 4 non-consecutive 2-digit, 3-digit or 4-digit numbers within 1000 in ascending or de- scending order; explain the reason for the order given using place value reasoning
Partitioning up to 4 digit numbers	1	Using place value to partition 4- digit numbers	• use place value equipment to parti- tion a given 4-digit number into thou- sands, hundreds, tens and ones
			• describe a 4-digit number using words, eg 9523 as '9 thousands, 5 hundreds, 2 tens and 3 ones'
			• write a 4-digit number in ex- panded notation, eg 7523 as 7000 + 500 + 20 + 3
			• write the numeral for a number rep- resented by expanded notation
			 recognise zero as a placeholder
Partitioning up to 4 digit numbers (non-standard)	1	Partitioning 4-digit numbers us- ing non-standard partitioning	• use place value equipment to par- tition a given 4-digit number using non-standard partitioning, eg 2375 as 2 thousands, 1 hundred and 275 ones or 2000 + 100 + 275
			• model and identify a number from non-standard partitioning, eg recog- nise 3 hundreds, 4 tens and 27 ones or 300 + 40 + 27 as 367
Rounding 4 digit num- bers	1	Rounding numbers up to 10 000 to the nearest 1000	• model a 4-digit number and recog- nise which thousand it is nearer to; explain reasoning
			• round a 4-digit number to the near- est 1000; recognise the digit in the hundreds column as the key digit
	2	Rounding numbers up to 10 000 to the nearest 10, 100 or 1000	• round a 4-digit number to the near- est 10, 100 or 1000; explain the rounding
		Number patterns	
Counting in 10s, 100s and 1000s	1	Counting by tens and hundreds using models, number lines and charts	• count forwards and backwards in tens, on and off the decade, with 2- digit, 3-digit and 4-digit numbers us- ing number lines and number charts
			 count forwards and backwards in hundreds, on the decade, with 3-digit and 4-digit numbers using number lines and number charts

Learning Journey	Steps	Content	Details
			• count forwards and backwards in hundreds, on and off the decade, with 3-digit and 4-digit numbers us- ing number lines and number charts
	2	Counting by tens and hundreds	• count forwards and backwards in tens, on and off the decade, with 2-digit, 3-digit and 4-digit numbers
			 count forwards and backwards in hundreds, on the decade, with 3-digit and 4-digit numbers
			• count forwards and backwards in hundreds, on and off the decade, with 3-digit and 4-digit numbers
	3	Counting by skip counting for- wards or backwards by 100s from any multiple of 100 up to 1000	• use concrete materials, models, drawings, number lines/charts to skip count forwards or backwards by 100s from any multiple of 100 up to 1000
			• skip count forwards or backwards by 100s from any multiple of 100 us- ing understanding of the number se- quence and place value up to 1000
			 recognise an error in the skip count- ing sequence
	4	Finding numbers 10 or 100 before and after up to 1000	• find the number '10 before' or '10 after' a given 2-digit, 3-digit or 4- digit number on or off the decade us- ing number lines and number charts
			• find the number '100 before' or '100 after' a given 3-digit or 4-digit num- ber on or off the decade using num- ber lines and number charts
	5	Counting by skip counting for- wards or backwards by 1000s to 10 000	• use Base 10, models, drawings, number lines/charts to skip count for- wards or backwards by 1000s from zero to 10 000
			 recognise an error in the skip count- ing sequence
Odd and even numbers	1	Investigating odd and even num- bers	• model odd and even numbers of up to 2 digits using arrays with 2 rows
			• compare and describe the differ- ence between models of even num- bers and models of odd numbers
			• recognise the connection between even numbers and the multiplication facts for 2
	2	Identifying odd and even num- bers up to and including 4 digits	• recognise the significance of the fi- nal digit of a whole number in de- termining whether a given number is even or odd
			 identify even or odd numbers up to and including 4 digits

Learning Journey	Steps	Content	Details
	3	Identifying odd and even number patterns (add in number lines and number charts)	• model even and odd numbers of up to 20 using arrays with 2 rows
			• compare and describe the differ- ence between the models of odd and even numbers
			• recognise the connection between even numbers, doubles and the 2 times-tables; demonstrate the con- nection with words, models or nu- merals
			• use the final digit of a whole number to determine whether a given num- ber is even or odd (up to four digits)
Identifying and creating number patterns	1	Identifying and creating additive number patterns (3s, 4s, 6s, 7s, 8s, 9s, from any starting point	 identify additive number patterns, eg patterns that increase in 3s, 4s, 6s, 7s, 8s and 9s from any starting point
		within 100)	• describe the rule for a forwards (ad- ditive) number pattern, eg 'lt goes up by 3s'
			• continue and create an additive number pattern
	2	Identifying and creating subtrac- tive number patterns (3s, 4s, 6s, 7s, 8s, 9s, from any starting point within 100)	• identify subtractive number pat- terns, eg patterns that decrease by 3s, 4s, 6s, 7s, 8s and 9s from any starting point
			• describe the rule for a backwards (subtractive) number pattern, eg 'lt goes down by 3s'
			• continue and create a subtractive number pattern represented in num- bers, on a number line or expressed in words, eg 'make a pattern that starts at 20 and shrinks by subtracting 2 each time'
	3	Identifying and creating additive and subtractive number patterns (3s, 4s, 6s, 7s, 8s, 9s, from any starting point within 100)	• identify additive or subtractive number patterns on a number line, hundreds chart or calendar, eg pat- terns that increase in 3s, 4s, 6s, 7s, 8s and 9s from any starting point
			 describe the rule for a forwards (additive) or backwards (subtractive) number pattern, eg 'lt goes up by 3s'
			• continue and create an additive or subtractive number pattern repre- sented in numbers, on a number line or expressed in words, eg 'make a pattern that starts at 0 and grows by adding 7 each time'
Exploring number pat- terns in tables and charts	1	Exploring number patterns rep- resented in addition tables and charts	• identify and explore patterns in an addition table and explain using properties of operations

Learning Journey	Steps	Content	Details
	2	Exploring number patterns rep- resented in multiplication tables and charts	• identify and explore patterns in a multiplication table, eg all the 10 times tables are in a straight line or 4 times a number is always even

Addition and Subtraction				
	Adding and subtracting within 100			
Learning Journey	Steps		Details	
Adding Within 100	1	Recalling number bonds to 30	• use known facts and number patterns to recall bonds to 30 eg 18 + 2 = 20 so $28 + 2 = 30$	
	2	Adding 3 or more single-digit numbers	• use appropriate strategies to add 3 or more single-digit numbers; includ- ing changing the order, doubles if ap- propriate, bridging to a ten	
			 explain and justify strategies used 	
	3	Adding and subtracting 3 or more single-digit numbers using compatible numbers	 use compatible numbers , eg 4 + 2 + 8 - 6 as 6 + 8 - 6 = 8 	
	4	Adding multiple single-digit num- bers	• use the associative property of ad- dition to make easier additions when possible, eg doubles or near doubles, pairs that add to a ten	
Adding two 2-digit num- bers by bridging	1	Bridging to ten to add two 2-digit numbers using models for sup- port	• add to the nearest ten first then add the rest, using models for sup- port, eg $28 + 17$ as $28 + 2 = 30$ and 30 + 15 = 45	
			 record and explain the use of the strategy 	
Number pairs to 100	1	Modelling pairs that add to 100	• use place value equipment to model pairs that add to 100, eg 63 and 37	
			 recognise that the ones make an extra ten when added 	
	2	Adding to make 100	• find pairs of numbers that add to 100 (multiples of 5), eg 45 and 55	
			• find pairs of numbers that add to 100, eg 42 and 58	
			• find the missing number to add to 100 when 1 number is given	
	3	Subtracting from 100	• subtract 1 number from 100 (multi- ple of 5), eg 100 – 35 = 65	
			• subtract 1 number from 100, eg 100 – 29 = 71	
		Adding within 1000		
Adding up to 3-digit numbers - jump strategy	1	Adding 2-digit and 3-digit num- bers using place value partition- ing on a number line (jump strat- egy)	• model and solve the addition of a 2-digit and 3-digit number using an empty number line, eg 823 + 56 as 823 + 50 = 873, 873 + 6 = 879	
	2	Adding 2-digit and 3-digit num- bers mentally using place value understanding (jump strategy)	• mentally solve addition problems involving 2-digit and 3-digit numbers using a jump strategy, eg 823 + 56 as 823 + 50 = 873, 873 + 6 = 879	
			• record and explain the use of the strategy	

Learning Journey	Steps	Content	Details
			• check calculations using the inverse operation
	3	Adding up to 3-digit numbers mentally using place value under- standing (jump strategy)	• solve the addition of two 3-digit numbers using a jump strategy, eg 823 + 356 as 823 + 300 = 1123, 1123 + 50 = 1173, 1173 + 6 = 1179
			 explain and justify the use of the strategy
Adding up to two 3-digit numbers - split strategy	1	Adding a 2-digit and 3-digit num- ber using place value models (split strategy)	• model the addition of a 2-digit and 3-digit number using a split strategy with or without crossing tens; use place value equipment, money or di- agrams
			• solve addition problems using a split strategy, eg 265 + 27 as 260 + 20 and 5 + 7, 280 + 12 = 292
			 record and explain the use of the strategy
	2	Adding up to two 3-digit numbers mentally using place value under- standing (split strategy)	• solve addition problems using a split strategy, eg 265 + 327 as 200 + 300, 60 + 20 and 5 + 7, 500 + 80 + 12 = 592
			 record and explain the strategy using numerals, models and/or dia- grams
Add up to 3-digit num- bers rounding & com- pensating	1	Introducing addition using round- ing and compensating with two 2-digit numbers	• add two 2-digit numbers where 1 number is close to a ten (digit in the ones column is 7, 8 or 9)
			• round 1 number to the next 10, carry out the addition and adjust the answer to compensate for the original rounding, eg $35 + 29$ as $35 + 30 - 1$
			• record the strategy using numerals, models and/or diagrams and explain the need to compensate
	2	Adding up to two 3-digit numbers using rounding and compensat- ing	• add up to two 3-digit numbers where 1 number is close to a hundred (ends in 97, 98 or 99)
			• round 1 number to the next 100, carry out the addition and adjust the answer to compensate for the original rounding, eg $398 + 23$ as 400 + 23 - 2
			• record the strategy using numerals, models and/or diagrams and explain the need to compensate
Adding up to 3-digit numbers - bridging to 10	1	Adding 2 numbers up to 3-digits using bridging to ten	• add up to two 3-digit numbers where the first number has a 7, 8, or 9 in the ones columns, by first adding to the nearest ten and then adding the rest, eg 368 + 25 as 368 + 2 + 23
			 record and explain the strategy using numerals, models and/or dia- grams

Learning Journey	Steps	Content	Details
Adding two 3-digit num- bers - formal method	1	Adding two 3-digit numbers us- ing columnar addition, not cross- ing the 10 or 100	• add two 3-digit numbers using columnar addition, not crossing the 10 or 100
		Subtracting within 1000	
Subtracting 2-digit num- bers - models	1	Bridging to ten to subtract two 2-digit numbers using models for support	• subtract to the nearest ten first then subtract the rest using models for support, eg $33 - 18$ as $33 - 3 - 10 - 5$
			strategy
Subtracting up to 3-digit numbers - jump strategy	1	Subtracting a 2-digit number from a 3-digit number using place value partitioning on a number line (jump strategy)	• model and solve the subtraction of a 2-digit number from a 3-digit number using an empty number line, eg 823 – 56 as 823 – 50 = 773, 773 – 6 = 767
	2	Subtracting a 2-digit number from a 3-digit number mentally using place value understanding (jump strategy)	• mentally solve subtraction prob- lems involving 2-digit and 3- digit numbers using place value partition- ing, eg $823 - 56$ as $823 - 50 = 773$, 773 - 6 = 767
			• record and explain the use of the strategy
			 check calculations using the inverse operation
	3	Subtracting up to 3-digit numbers mentally using place value under- standing (jump strategy)	• solve the subtraction of two 3-digit numbers using a jump strategy, eg 823 – 356 as 823 – 300 = 523, 523 – 50 = 473, 473 – 6 = 467
			• explain and justify the use of the strategy
Subtracting up to 3-digit numbers - split strategy	1	Subtracting a 2-digit number from a 3-digit number using place value models (split strat- egy)	 model the subtraction of a 2- digit and 3-digit number using a split strategy; place value equipment, money or diagrams
			• solve subtraction problems using a split strategy, eg 265 - 21 as 260 - 20 and 5 - 1, 240 + 4 = 244
			 record and explain the use of the strategy
	2	Subtracting two 3-digit numbers mentally using place value under- standing (split strategy)	• solve subtraction problems using a split strategy, eg 548 – 127 as 500 – 100 and 40 – 20 and 8 – 7, 400 + 20 + 1 = 421
			 record and explain the strategy using numerals, models and/or dia- grams
Subtract up to 3-digit numbers - round & com- pensate	1	Introducing subtraction using rounding and compensating with two 2-digit numbers	 subtract two 2-digit numbers where 1 number is close to a ten round 1 number to the next 10, carry out the subtraction and ad- just the answer to compensate for the original rounding, eg 33 – 19 as 33 – 20 + 1 or 81 – 35 as 80 – 35 + 1

Learning Journey	Steps	Content	Details
			• record the strategy using numerals, models and/or diagrams and explain the need to compensate
	2	Subtracting up to two 3-digit numbers using rounding and compensating	• record the strategy using numerals, models and/or diagrams and explain the need to compensate
			• subtract up to two 3-digit numbers where 1 number is close to a hundred (ends in 97, 98 or 99)
			• round 1 number to the next 100, carry out the subtraction and adjust the answer to compensate for the original rounding, eg $398 - 23$ as 400 - 23 + 2
			• record the strategy using numerals, models and/or diagrams and explain the need to compensate
Subtracting up to 3-digit numbers - bridging to 10	1	Subtracting 2 numbers up to 3- digits using bridging to ten	• subtract two numbers (up to 3- digits) where the first number has a 1, 2 or 3 in the ones columns, by first subtracting to the nearest ten and then subtracting the rest, eg $362 - 25$ as $362 - 2 - 23$
			• record and explain the strategy using numerals, models and/or dia- grams
		Adding and subtracting within 10	00
Add/subtract 2-digit numbers - bridging strategies	1	Bridging to ten to mentally add and subtract two 2-digit numbers	• add or subtract to the nearest ten first then add or subtract the rest, us- ing models for support, eg $28 + 17$ as 28 + 2 = 30 and $30 + 15 = 45$
			• check calculations using the inverse operation
	2	Using a bridging strategy with start unknown or change un- known problems	• use a bridging strategy to solve addition and subtraction problems where the change is unknown, eg 29 + ? = 81
			• use a bridging strategy to solve addition and subtraction problems where the start is unknown, eg ? + 29 = 81 becomes 29 + ? = 81
Add/subtract up to 3- digit numbers - jump strategy	1	Adding and subtracting a 2-digit and 3-digit number using place value partitioning on a number line (jump strategy)	• model and solve the addition or subtraction of a 2-digit number from a 3-digit number using an empty number line, eg 823 – 56 as 823 – 50 = 773, 773 – 6 = 767
	2	Adding and subtracting a 2-digit and 3-digit number mentally us- ing place value understanding (jump strategy)	• mentally solve addition and sub- traction problems involving 2-digit and 3- digit numbers using place value partitioning, eg 823 – 56 as 823 – 50 = 773, 773 – 6 = 767

Learning Journey	Steps	Content	Details
	3	Adding or subtracting up to 3-digit numbers mentally using place value understanding (jump strategy)	• solve the addition or subtrac- tion of two 3-digit numbers using a jump strategy, eg $823 - 356$ as 823 - 300 = 523, $523 - 50 = 473$, 473 - 6 = 467
Add/subtract up to 3-digit numbers- split strategy	1	Adding and subtracting 2-digit and 3-digit numbers using place value models (split strategy)	• model the addition or subtraction of a 2-digit and 3-digit number using a split strategy; place value equipment, money or diagrams
			• solve addition and subtraction problems using a split strategy, eg 265 - 21 as $260 - 20$ and $5 - 1$, 240 + 4 = 244
			 record and explain the strategy using numerals, models and/or dia- grams
			 check calculations using the inverse operation
	2	Adding and subtracting two 3-digit numbers mentally using place value understanding (split strategy)	• solve addition and subtraction problems using a split strategy, eg 265 + 327 as $200 + 300$, $60 + 20$ and 5 + 7, $500 + 80 + 12 = 592$
			 record and explain the strategy using numerals, models and/or dia- grams
			 check calculations using the inverse operation
Add/subtract up to 3- digit numbers - bridging to 10	1	Adding and subtracting 2 num- bers up to 3-digits using bridging to ten	• add or subtract two numbers (up to 3-digits) where the first number has a 7, 8, or 9 in the ones columns, by first adding to the nearest ten and then adding the rest, eg $368 + 25$ as $368 + 2 + 23$, or $362 - 25$ as $362 - 2 - 23$
			 record and explain the strategy using numerals, models and/or dia- grams
Add and subtract - rounding and compen- sating	1	Introducing addition and subtrac- tion using rounding and compen- sating with two 2-digit numbers	• add or subtract two 2-digit num- bers where 1 number is close to a ten (digit in the ones column is 7, 8 or 9)
			• round 1 number to the next 10, carry out the addition or subtrac- tion and adjust the answer to com- pensate for the original rounding, eg 33 + 19 as $33 + 20 - 1$ or $81 + 35$ as 80 + 35 + 1
			• check calculations using the inverse operation
	2	Introducing addition using round- ing and compensating when the change or start is unknown	• model with number lines and solve addition problems with two 2-digit numbers where the digits in the ones column for the known addend and re- sult are close together, eg $23 + ? = 81$ becomes $23 + 60 - 2$

Learning Journey	Steps	Content	Details
			• explain and justify the use of the strategy
	3	Adding and subtracting up to two 3-digit numbers using rounding and compensating	• add or subtract up to two 3-digit numbers where 1 number is close to a hundred (ends in 97, 98 or 99)
			• round 1 number to the next 100, carry out the addition or subtrac- tion and adjust the answer to com- pensate for the original rounding, eg 398 + 23 as $400 + 23 - 2$
Add/subtract - non- standard partitioning	1	Adding two 3-digit numbers us- ing non-standard partitioning	• partition the second number using non-standard partitioning to add two 3-digit numbers, eg 1546 + 625 as 546 + 500 + 100 + 20 + 5
			 record and explain the strategy using numerals, models and/or dia- grams
	2	Subtracting two 3-digit numbers using non-standard partitioning	• partition the second num- ber using non-standard parti- tioning to subtract two 3-digit numbers, eg 1546 – 625 as 1546 – 500 – 100 – 20 – 5
			 record and explain the strategy using numerals, models and/or dia- grams
	1	Adding and subtracting within 10	000
Add and subtract - stan- dard partitioning	1	Adding and subtracting multi- digit numbers using place value partitioning	 partition the second number to add two multi-digit numbers (up to 4 digits), eg 1546 + 625 as 546 + 600 + 20 + 5; use standard or non-standard partitioning partition the second number to
			subtract two multi-digit numbers (up to 4 digits), eg 1546 – 625 as 546 – 600 – 20 – 5; use standard or non-standard partitioning
		Adding and subtracting with multi	ples
Adding and subtracting multiples of 10	1	Adding a multiple of 10 to a 3- digit number not crossing the 100	• add a multiple of 10 to a 3-digit number not crossing the 100, using models and tables, eg 239 + 40 = ?
	2	Subtracting a multiple of 10 from a 3-digit number not crossing the 100	• subtract a multiple of 10 from a 3-digit number not crossing the 100, using models and tables, eg 775 - 50 = ?
	3	Adding and subtracting multiples of 10 from 3-digit numbers, not crossing the 100	• add and subtract a multiple of 10 from a 3-digit number not crossing the 100, using models and tables
Adding and subtracting multiples of 100	1	Adding and subtracting multiples of 100 from a 3-digit number us- ing models	• add multiples of 100 to any 3-digit number using models to solve miss- ing numbers, eg 675 = 475 + 200, eg bar models, place value grid, Base ten

Learning Journey	Steps	Content	Details
			• subtract multiples of 100 from any 3-digit number using models to solve missing numbers eg 675 - 200, eg bar models, place value grid, Base ten
			• add and subtract multiples of 100 from any 3-digit number using mod- els eg, bar models, place value grid, Base ten
Adding multiples of 100	1	Adding multiples of 100 up to 5	• add multiples of 100 up to 5 digits
up to 5 digits		digits	• solve addition problems using mul- tiples of 100 up to 5 digits
Subtracting multiples of 100 up to 5 digits	1	Subtracting multiples of 100 up to 5 digits	• subtract multiples of 100 up to 5 digits
			• solve subtraction problems using multiples of 100 up to 5 digits
Add and subtract multi- ples of 100 (to 5 digits)	1	Adding and subtracting multiples of 100 up to 5 digits	• add or subtract numbers up to 5 digits which are multiples of 100
Adding multiples of 10, 1000 and 10 000	1	Adding multiples of 100, 1000 and 10 000	• model the addition of hundreds and/or thousands using place value equipment or play money; relate these additions to adding ones, eg 4 + 3 = 7 so 4 thou- sands + 3 thousands = 7 thousands or 4000 + 3000 = 7000
			• use known basic facts, eg $5 + 3$ to add multiples of 100, 1000 or 10 000 using place value knowledge and pattern identification, eg $5 + 3 = 8$, so 500 + 300 = 800, $5000 + 3000 = 8000and 50\ 000 + 30\ 000 = 80\ 000$
Subtracting multiples of 10, 1000 and 10 000	1	Subtracting multiples of 100, 1000 and 10 000	• model the subtraction of hun- dreds and/or thousands using place value equipment or play money; re- late these additions to subtracting ones, eg 8 – 3 = 5 so 8 thou- sands – 3 thousands = 5 thousands or 8000 – 3000 = 5000
			• use known basic facts, eg 9 - 5 to subtract multiples of 100, 1000 or 10 000 using place value knowl- edge and pattern identification, eg 9 - 5 = 4, so $900 - 500 = 400$, 9000 - 5000 = 4000 and $90000 - 50000 = 40000$
		Efficient strategies to add and subt	ract
Efficient strategies to add and subtract	1	Choosing efficient addition strategies when adding 2-digit and 3-digit numbers	• solve 2-digit and 3-digit addition problems using efficient and effective strategies depending on the numbers in the problem, eg use rounding and compensating, jump strategies, split strategies, place value strategies or bridging strategies

Learning Journey	Steps	Content	Details
			 record and explain the strategy using numerals, models and/or dia- grams check the solution using a different strategy; compare with own and oth- ers' strategies, discuss and compare
	2	Choosing efficient subtraction	solve 2-diait and 3-diait subtraction
	Z	strategies when subtracting 2- digit and 3-digit numbers	problems using efficient and effective strategies depending on the numbers in the problem, eg use rounding and compensating, jump strategies, split strategies, place value strategies or bridging strategies
			 record and explain the strategy using numerals, models and/or dia- grams
			• check the solution using a different strategy; compare with own and oth- ers' strategies, discuss and compare the efficiency of strategies
	3	Choosing efficient addition and subtraction strategies when adding or subtracting 2-digit and 3-digit numbers	• solve 2-digit and 3-digit addition and subtraction problems using ef- ficient and effective strategies de- pending on the numbers in the prob- lem, eg use rounding and compen- sating, jump strategies, split strate- gies, place value strategies or bridg- ing strategies
			 record and explain the strategy using numerals, models and/or dia- grams
			• check the solution using a different strategy; compare with own and oth- ers' strategies, discuss and compare the efficiency of strategies
	F	Problem solving - addition & subtra	ction
Problem solving with addition and subtraction	1	Creating and solving addition and subtraction word problems (within 1000)	• represent a word problem as an addition or subtraction number sentence
			• solve simple addition and subtrac- tion word problems in context includ- ing find the difference, find the sum, change unknown, start unknown
			• explain and compare strategies used to solve addition and subtrac- tion word problems
			• create problems in contexts that in- volve addition and subtraction
	2	Recognising equivalent number sentences with 1-digit and 2- digit numbers	• complete number sentences involv- ing addition and subtraction by cal- culating missing numbers using a va- riety of tools and strategies
			• use inverse operations to complete number sentences

Learning Journey	Steps	Content	Details
			 justify solutions when completing number sentences
Inverse relationship (add/subtract)	1	Recognising and using the in- verse relationship between addi- tion and subtraction	• determine, through investigation, the inverse relationship between ad- dition and subtraction
			• determine the missing number in addition and subtraction equations using a variety of tools and strate- gies, such as the inverse relation- ship between addition and subtrac- tion (up to 2 digit with 2-digit addi- tion or subtraction)
Solving 2-step word problems	1	Solving simple two-step word problems with addition and sub- traction (max sum of 100)	• read and represent a two-step word problem using a letter for the unknown quantity
			 solve the problem using a variety of tools, models and strategies
		Estimating addition and subtracti	on
Estimating additions and subtractions	1	1 Estimating additions using round- ing with 3-digit numbers	• round numbers to the nearest mul- tiple of 100 to estimate additions, eg 546 + 789 as 500 + 800
			• round numbers to the nearest multi- ple of 10 or 100 to estimate additions, eg 546 + 789 as 540 + 800
			• explain the reason for the estima- tion used and whether the estimation is higher or lower than the actual an- swer
	2	Estimating subtractions using rounding with 3-digit numbers	• round numbers to the nearest mul- tiple of 100 to estimate subtractions, eg 546 – 189 as 500 – 200
			• round numbers to the nearest multi- ple of 10 or 100 to estimate subtrac- tions, eg 746 – 389 as 740 – 400
			• explain the reason for the estima- tion used and whether the estimation is higher or lower than the actual an- swer

Multiplication and Division			
		Skip counting by 3 and 4	
Learning Journey	Steps	Content	Details
Skip counting by 3 to 30	1	Counting by skip counting for- wards by 3s from zero up to 30	 use concrete materials, models, drawings, number lines/charts to skip count by 3s from zero
			• use rhythmic counting to count in 3s from zero
			• recognise an error in the skip count- ing sequence
	2	Counting by skip counting back- wards by 3s from 30	• use concrete materials, models, drawings, number lines/charts to skip count backwards by 3s from 30
			• use rhythmic counting to count backwards in 3s from 30

Learning Journey	Steps	Content	Details
			• recognise an error in the skip count- ing sequence
	3	Counting by skip counting for- wards or backwards by 3s from zero up to 30	• use concrete materials, models, drawings, number lines/charts to skip count by 3s
			• use rhythmic counting to count in 3s
			• recognise an error in the skip count- ing sequence
Skip counting by 3 to 30 from any multiple	1	Counting by skip counting for- wards by 3s from any multiple of 3 up to 30	• use concrete materials, models, drawings, number lines/charts to skip count by 3s from any multiple of 3
			• use knowledge of the number se- quence to count in 3s from any mul- tiple of 3
			• recognise an error in the skip count- ing sequence
	2	Counting by skip counting back- wards by 3s from any multiple of 3 from 30	• use concrete materials, models, drawings, number lines/charts to skip count backwards by 3s from 30
			• use knowledge of the number se- quence to count backwards in 3s from any multiple of 3
			• recognise an error in the skip count- ing sequence
	3	Counting by skip counting for- wards or backwards by 3s from any multiple of 3 from zero to 30	• use concrete materials, models, drawings, number lines/charts to skip count by 3s
			• use knowledge of the number se- quence to count forwards or back- wards in 3s from any multiple of 3
			• recognise an error in the skip count- ing sequence
Skip counting by 4 to 40	1	Counting by skip counting for- wards by 4s from zero up to 40	• use concrete materials, models, drawings, number lines/charts to skip count by 4s from zero
			• use rhythmic counting to count in 4s from zero
			 recognise an error in the skip count- ing sequence
		Multiplication facts for 2 (up to 10	Dx)
Recalling multiplication facts for 2	1	Recalling multiplication facts for 2	• recall the 2 multiplication facts
Using multiplication facts for 2	1	Using multiplication facts for 2	• solve and create multiplication problems in context (using multipli- cation facts for 2), including word problems
		Multiplication facts for 3 (up to 10)x)
Exploring multiplication by 3	1	Exploring multiplication by 3	• relate multiplication by 3 to doubles and 1 more group; model and de- scribe, eg '3 groups of 4 is the same as double 4 and one more group of 4'
			 explore patterns of the multiplica- tion facts for 3 on a number chart

Learning Journey	Steps	Content	Details
			• model the 2 related multiplication facts, eg 3 x 4 and 4 x 3
Recalling multiplication facts for 3	1	Recalling multiplication facts for 3	• recall the multiplication facts for 3
Using multiplication facts for 3	1	Using multiplication facts for 3	• solve and create multiplication problems in context (using multipli- cation facts for 3), including word problems
		Multiplication facts for 4 (up to 10	Dx)
Recalling multiplication facts for 4	1	Recalling multiplication facts for 4	• recall the multiplication facts for 4
	1	Multiplication facts for 5 (up to 10)x)
Recalling multiplication facts for 5	1	Recalling multiplication facts for 5	• recall the 5 multiplication facts
Using multiplication facts for 5	1	Using multiplication facts for 5	• solve and create multiplication problems in context (using multipli- cation facts for 5), including word problems
		Multiplication facts for 10 (up to 1	0x)
Using multiplication facts for 10	1	Using multiplication facts for 10	• solve and create multiplication problems in context (using multipli- cation facts for 10), including word problems
Multiplying by 2s, 5s and 10s	1	Multiplying by 2s, 5s and 10s	 recall the multiplication facts for 2s, 5s and 10s
			• solve multiplication problems with 2, 5 or 10, including word problems; use the multiplication symbol
Recalling the multiplica- tion facts for 10	1	Recalling the multiplication facts for 10	 recall the 10 multiplication facts
		Recalling multiplication facts to 5	x 5
Recalling multiplication facts to 5 x 5	1	Recalling multiplication facts to 5 x 5	• recall multiplication facts to 5 x 5
	l	Multiplication facts for 3 (up to 12	2x)
Using multiplication facts for 3 (up to 12x)	1	Using multiplication facts for 3 (up to 12x)	• solve and create multiplication problems in context (using multipli- cation facts for 3), including word problems and models
Recalling multiplication facts for 3 (up to 12x)	1	Recalling multiplication facts for 3 (up to 12x)	• recall the multiplication facts for 3
		Multiplication facts x4 (up to x12	2)
Multiply by 4 (x12)	1	Exploring multiplication by 4 up to 48	• relate multiplication by 4 to double multiplication by 2
			• explore patterns of the multiplica- tion facts for 4 on a number chart
			• model the 2 related multiplication facts, eg 3 x 4 and 4 x 3
Recalling multiplication facts for 4 (up to 12x)	1	Recalling multiplication facts for 4 (up to 12x)	• recall the multiplication facts for 4
Using multiplication facts x4 (up to x12)	1	Using multiplication facts for 4	• solve and create multiplication problems in context (using multipli- cation facts for 4), including word problems

Learning Journey	Steps	Content	Details
		Dividing by 2	
Using division facts for 2	1	Using division facts for 2	• solve and create division problems in context (using multiplication facts for 2), including word problems
		Dividing by 5	
Using division facts for 5	1	Using division facts for 5	• solve and create division problems in context (using multiplication facts for 5), including word problems
		Dividing by 10	
Using division facts for 10	1	Using division facts for 10	• solve and create division problems in context (using multiplication facts for 10), including word problems
		Dividing by 2, 5, 10	
Divide by 2, 5 and 10	1	Dividing by 2s, 5s and 10s	• recall the division facts for 2s, 5s and 10s
			• solve division problems with 2, 5 or 10, including word problems; use the division symbol
	2	Dividing by 2, 5, 3 and 4 (1 - 10)	• recall the division facts for 2s, 5s, 3s and 4s
			• solve division problems with 2, 5, 3 and 4, including word problems
		Dividing by 3	
Divide by 3	1	Dividing by 3	• model and describe the related mul- tiplication and division facts for 3 us- ing models, drawings or manipula- tives, eg 5 x 3 = 15 and 15 divided by 3 = 5
			• relate division to how many (whole) times the divisor goes into the divi- dend
Using division facts for 3	1	Using division facts for 3	• solve and create division problems in context (using multiplication facts for 3), including word problems
		Dividing by 3 up to 36	
Using division facts for 3 up to by 36	1	Using division facts for 3 up to 36	• solve and create division problems in context (using multiplication facts for 3), including word problems and models
		Dividing by 4	
Divide by 4	1	Dividing by 4	• model and describe the related mul- tiplication and division facts for 4 us- ing models, drawings or manipula- tives, eg 4 x 3 = 12 and 12 divided by $3 = 4$
			• relate division to how many (whole) times the divisor goes into the divi- dend
Using division facts for 4	1	Using division facts for 4	• solve and create division problems in context (using multiplication facts for 4), including word problems

Learning Journey	Steps	Content	Details
		Dividing by 4 up to 48	
Divide by 4 (up to 48)	1	Dividing by 4 up to 48	• model and describe the related mul- tiplication and division facts for 4 us- ing models, drawings or manipula- tives, eg 4 x 3 = 12 and 12 divided by $3 = 4$
			times the divisor goes into the divi- dend
Using division facts for 4 up to by 48	1	Using division facts for 4 up to 48	• solve and create division problems in context (using multiplication facts for 4), including word problems and models
	_	Recalling division facts for 2	
Recalling division facts for 2	1	Recalling the division facts for 2	• recall the division facts for 2
		Recalling division facts for 5	
Recalling division facts for 5	1	Recalling the division facts for 5	• recall the division facts for 5
		Recalling division facts for 10	
Recalling division facts for 10	1	Recalling the division facts for 10	• recall the division facts for 10
		Recalling division facts for 3	
Recalling division facts for 3	1	Recalling the division facts for 3 up to 30	• recall the division facts for 3
		Recalling division facts for 4 up to	40
Recalling division facts	1	Recalling division facts for 4	 recall the division facts for 4
		Recalling division facts for 4 up to	48
Recalling division facts for 4 up to 48	1	Recalling division facts for 4 up to 48	 recall the division facts for 4 using models
		Multiplying and dividing by 2	
Multiplying and dividing by 2	1	Multiplying and dividing by 2	 recall the multiplication and division facts for 2
			• solve and create multiplication and division problems in context (using multiplication facts for 2), including word problems
		Multiplying and dividing by 5	
Multiplying and dividing by 5	1	Multiplying and dividing by 5	• recall the multiplication and division facts for 5
			• solve and create multiplication and division problems in context (using multiplication facts for 5), including word problems
		Multiplying and dividing by 10	
Multiplying and dividing by 10	1	Multiplying and dividing by 10	• recall the multiplication and division facts for 10
			• solve and create multiplication and division problems in context (using multiplication facts for 10), including word problems

Learning Journey	Steps	Content	Details
		Multiplying and dividing by 2s, 5s &	10s
Multiplying and dividing by 2s, 5s and 10s	1	Multiplying and dividing by 2s, 5s and 10s	• recall the multiplication facts and related division facts for 2s, 5s and 10s
			• solve multiplication and division problems with 2, 5 or 10, including word problems; use the multiplica- tion symbol
		Multiplying and dividing by 3 (up to	36)
Multiplying and dividing by 3 (up to 36)	1	Multiplying and dividing by 3	• recall the multiplication facts and related division facts for 3
			 solve multiplication and division problems with 3, including word problems
		Multiplying and dividing by 4	
Multiplying and dividing by 4	1	Multiplying and dividing by 4	 recall the multiplication facts and related division facts for 4
			• solve multiplication and division problems with 4, including word problems
		Multiplying and dividing by 4 (up to	9 48)
Multiplying and dividing by 4 (up to 48)	1	Multiplying and dividing by 4 up to 48	 recall the multiplication facts and related division facts for 4
			 solve multiplication and division problems with 4, including word problems
		Multiply and divide facts within x	10
Multiplication and divi- sion facts (2, 5, 3, 4)	1	Multiplying by 2, 5, 3 and 4 (1 - 10)	• recall the multiplication facts for 2s, 5s, 3s and 4s
			• solve multiplication problems with 2, 5, 3 and 4, including word problems
	2	Multiplying and dividing by 2, 5, 3 and 4 (1 - 10)	• recall the multiplication and division facts for 2s, 5s, 3s and 4s
			• solve multiplication and division problems with 2, 5, 3 and 4, including word problems
		Using multiples	
Multiplying by a multiple of 10	1	Using place value to multiply (x 10)	• model the multiplication of a 1-digit number and a multiple of 10 using place value equipment or models, eg model 4 groups of 30 using tens rods
			• relate to known facts and place value understanding, eg 4 x 3 = 12 so 4 x 3 tens = 12 tens or 120
	2	Multiplying by a multiple of 10	• relate to known facts and place value understanding, eg $4 \times 3 = 12$ so 4×3 tens = 12 tens or 120
			• use skip counting to solve, eg 4 x 30 as 30 + 30 + 30 + 30
			• multiply by factorising the multiple and represent with drawings or mod- els, eq 4×30 as $4 \times 3 \times 10$

Learning Journey	Steps	Content	Details
Multiply by a multiple of 100	1	Using place value to multiply (x 100)	• model the multiplication of a 1-digit number and a multiple of 100 using place value equipment or models, eg model 4 groups of 300 using hun- dreds blocks
			• relate to known facts and place value understanding, eg 4 x 3 = 12 so 4 x 3 hundreds = 12 hundreds or 1200
	2	Multiplying by a multiple of 100	• relate to known facts and place value understanding, eg 4 x 3 = 12 so 4 x 3 hundreds = 12 hundreds or 1200
			• use skip counting to solve, eg 4 x 300 as 300 + 300 + 300 + 300
			• multiply by factorising the multiple and represent with drawings or mod- els, eg 4 x 30 as 4 x 3 x 100
Divide by multiples of 10 and 100	1	Dividing a multiple of 10 by 10 where answer is a whole number	• relate to known facts and place value understanding, eg 40 / 10 = 4 so 400 / 10 = 40
	2	Dividing a multiple of 100 by 100 where answer is a whole number	• relate to known facts and place value understanding, eg 42 divided by $1 = 42$ and 420 divided by $10 = 42$, so 4200 divided by $100 = 42$
		Problem solving	
Understand division as an unknown-factor problem	1	Understanding division as an unknown-factor problem	 understand division as an unknown-factor problem
Connecting multiplica- tion and division facts	1	Relating multiplication and divi- sion facts through fact families	• model and describe the fact fami- lies for 2, 3, 4, 5 and 10 multiplication facts, eg $3 \times 4 = 12$, $4 \times 3 = 12$, 12 divided by $3 = 4$ and 12 divided by 4 equals 3
			• explain why a rectangular array can be read as a division in 2 ways by forming vertical or horizontal groups, eg 12 ÷ 3 = 4 or 12 ÷ 4 = 3
Finding missing num- bers in equations	1	Finding the missing number to make a multiplication number sentence true (2, 5, 10 facts)	• complete number sentences involv- ing 1 operation of multiplication by finding the missing number using a variety of tools, equipment and strategies, eg $3 \times ? = 30$ or $? \times 2 = 18$ or $5 \times 3 = ?$
	2	Finding the missing number to make a division number sentence true (2, 5, 10 facts)	• complete number sentences involv- ing 1 operation of division by finding the missing number using a variety of tools, equipment and strategies eg $40 \div 10 = ?$, or $35 \div ? = 7$ or $? \div 2 = 9$
	3	Finding the unknown whole num- ber (in any position) in a multipli- cation or division equation	• find the unknown whole number (in any position) in a multiplication or division equation

Learning Journey	Steps	Content	Details
Solving 2-step equa- tions	1	Solving two-step word problems with the four operations (2, 5, 10 multiplication facts)	 use the four operations to solve two-step word problems
			• represent an unknown quantity with a letter
			• solve the problem using a variety of tools, models and strategies
Multiplication problems: fair share/equal group- ing	1	Solving multiplication problems using fair shares or equal group- ing (within 100)	• solve fair share multiplication or division problems (with unknown in any position), eg '20 flowers are to be placed in 4 bunches, how many flow- ers will be in each bunch?'
			• solve equal grouping multiplication or division problems (with unknown in any position), eg 'There are 9 ta- bles in a cafeteria. Each table has 5 chairs. What is the total number of chairs in the cafeteria?'
			• write equations using a symbol, eg a box or a blank, to represent the un- known number
			• compare their own and others' methods of solution
Solving word problems with arrays	1	1 Solving multiplication and divi- sion problems involving arrays (within 100)	• solve multiplication and division problems (with the unknown in any position) involving arrays, eg 'A rect- angular egg carton has 3 rows and 4 columns of eggs. How many eggs are there?'
			• write equations using a symbol, eg a box or a blank, to represent the un- known number
			 compare their own and others' methods of solution
Solving comparison word problems	1	Solving multiplication and divi- sion problems involving compar- isons (within 100)	• solve multiplication and division problems involving comparisons eg 'Anna has 3 times as much money as David. David has \$6. How much money does Anna have?'
			• write equations using a symbol, eg a box or a blank, to represent the un- known number
			 compare their own and others' methods of solution
Scaling problems	1	Using multiplication and division to solve measurement and scal- ing problems (within 100)	• solve scaling problems using mul- tiplication and division strategies, eg 'This square has sides of 5 cm. Draw a square with sides that are 3 times as long'
			 compare their own and others' methods of solution

Money			
		Money and purchases (AUS)	
Learning Journey	Steps	Content	Details
Money (\$)	1	Using money to make purchases	• calculate the total cost of purchas- ing two items given their values and record the value in dollars and cents separately (no decimal point)
			• determine the exact notes and coins needed to purchase two items given their values
	2	Calculating change when making purchases	• determine one or more notes and coins that have enough value to make a purchase of one or more items
			• calculate the change required when making purchases using cash and record values in dollars and cents separately (no decimal point)
		Money and purchases (UK)	
Money (£)	1	Using money to make purchases United Kingdom	• calculate the total cost of purchas- ing 2 items given their values and record the value in pounds and pence separately (no decimal point)
			• determine the exact notes and coins needed to purchase 2 items given their values
	2	Solving simple word problems involving money (pounds and pence) United Kingdom	• solve word problems using coins, eg would you rather have five 50p coins or twelve 20p coins?

Fractions			
		Fractions - basic facts	
Learning Journey	Steps	Content	Details
Numerator and denomi- nator	1	Introducing the terms numerator and denominator	• read and write symbols to represent fractions
			 use the terms denominator and nu- merator to describe a fraction
		Introducing and counting in fraction	ons
Introducing eighths	1	Introducing eighths of objects or shapes	 find eighths of objects and shapes
			 recognise equivalence with halves and quarters
			• use the language of 'one eighth', 'two eighths' and so forth along with standard fractional notation
Introducing thirds 1	Introducing thirds	• find thirds of objects, shapes and lengths	
			• find thirds of sets
			• estimate the size of a fractional part before using eg paper folding to check or estimate the size of the whole from the part
			 find the whole from a part
			 use language 'one third', 'two thirds', 'three thirds'

Counting in thirds 1 Counting in thirds on a number line up to 1 • repr (in sir numb sions 2 Counting in thirds on a number line up to 3 • counting in thirds on a number line up to 3 • countios in thirds on a number line up to 3 1 Introducing sixths 1 Introducing sixths • find 1 Introducing sixths 1 Introducing sixths • find 1 Introducing fifths 1 Introducing fifths • esti part I to che whole 1 Introducing fifths 1 Introducing fifths • esti part I to che whole • Introducing fifths 1 Introducing fifths • esti part I to che whole	symbols to represent: $\frac{1}{3}$, 2/3, 3/3 esent fractions on a number line nple cases, eg identify 2/3 on a er line that already shows divi- in thirds) nt in proper and improper frac- on a number line tify whole number equivalence 1, 6/3 = 2 sixths of objects and shapes sixths of sets mate the size of a fractional
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Introducing fifths 1 Introducing fifths 1 Introducing fifths 1 Introducing fifths 1 Introducing fifths	mate the size of a fractional
Introducing fifths 1 Introducing fifths 1 Introducing fifths • estimate to che whole • find length • find • use • u	before using, eg paper folding eck or estimate the size of the e from the part
Introducing fifths 1 Introducing fifths 1 Introducing fifths • use • • und tween • und tw	the whole from a part
Introducing fifths 1 Introducing fifths 0 estipart i to che whole find lengt find find find find find find find find	e language 'one sixth', 'two ', 'three sixths'
Introducing fifths 1 Introducing fifths • estination • und tweer • esting out to che whole • find length • find	symbols to represent: $\frac{1}{6}$, 2/6, 3/6
Introducing fifths 1 Introducing fifths • esting art is to che whole • find length • find	derstand the relationship be- n thirds and sixths
find ind	mate the size of a fractional before using, eg paper folding eck or estimate the size of the e from the part
• find	fifths of objects, shapes and ns
- Ead	fifths of sets
ΦΠΠα	the whole from a part
• use 'three	language 'one fifth', 'two fifths', fifths' and so on
• use 1/5, 2	symbols to represent fractions /5
Introducing and count- ing in tenths 1 Introducing tenths • reco	gnise that tenths come from 10 parts
• find shape	I tenths of objects, sets and es
• find	the whole from the part
• use tenths	e language 'one tenth', 'two s' etc
• use 1/10,	symbols to represent fractions 2/10 etc
• reco viding by 10	gnise that tenths come from di- 1 -digit numbers or quantities
Finding fractions of shapes	
Fractions of objects or 1 Finding halves, quarters and reco	gnise equivalence
• esti part l to che whole	mate the size of a fractional before using, eg paper folding ack or estimate the size of the

Learning Journey	Steps	Content	Details
			• find halves, quarters and eighths of uneven partitioned shapes
			 use symbols for halves, quarters and eighths
			 recognise larger denomina- tor = smaller parts
	2	Finding halves, thirds or quarters of shapes using partitioning	 recognise that equal shares are not always the same shape
	3	Finding thirds and sixths of ob-	 recognise equivalence
		jects, shapes and sets	 find thirds and sixths of objects, shapes and lengths
			 find thirds and sixths of sets (using models)
			 find the whole from a part
			• find thirds and sixths of uneven par- titioned shapes
			• use language 'one third', 'two thirds', 'three thirds'
			 use fractional notation
Identifying simple frac- tions	1	Identifying and representing sim- ple fractions of an object or shape	• find any fraction, eg 5 squares shaded out of 12 is 5/12
		(denominators 1-12)	 recognise larger denomina- tor = smaller parts
			• recognise that objects and shapes can be partitioned in various ways eg recognise that shading 5 squares out of 12 can be done in many ways
			 explore equivalences
Matching representa- tions of fractions	1	Matching fractions in different representations	• match fractions using different rep- resentations, eg, written, model, frac- tion symbol, number line, multilink, Numicon
Partition shapes into parts with equal areas	1	Partitioning shapes into parts with equal areas	• partition shapes into parts with equal areas
			• express the area of each part as a unit fraction of the whole
Express and identify whole numbers as frac-	1	Identifying simple fractions that are equivalent to 1 whole	• use models to identify fractions that are equivalent to one whole
tions			 record equivalences eg 3/3 = 1
	2	Identifying fractions that are equivalent to 1 whole on a num- ber line (denominators 2, 3, 4, 6, 8)	• identify fractions that are equiva- lent to 1 whole on a number line (de- nominators 2, 3, 4, 6, 8)
	3	Expressing whole numbers as fractions	• express whole numbers as fractions
	4	Using models to find the whole given the unit fraction of a set (de- nominators 2, 3, 4, 5, 6, 8)	 find the whole given the fraction of a set, eg Anne has 4 stickers. She has ¹/₃ of the sticker collection. How many stickers are there in the sticker collection? use addition and subtraction strate-
			gies

Learning Journey	Steps	Content	Details
		Fractions on a number line	
Locating unit fractions on a number line	1	Locating unit fractions on a num- ber line (denominators 2, 3, 4, 6, 8)	• locate unit fractions on a number line (denominators 2, 3, 4, 6, 8)
	2	Locating fractions on a number line (denominators 2, 3, 4, 6, 8)	• locate fractions on a number line (denominators 2, 3, 4, 6, 8)
Counting with fractions on a number line	1	Counting with halves and quar- ters and eighths on a number line up to 3	 count in proper and improper fractions on a number line identify equivalence to 1: 2/2 = 1,
			4/4 = 1, 8/8 = 1
	2	Counting and representing mixed numbers on a number line up to 3	• count in mixed numbers on a num- ber line
		(naives, quarters, eightits)	 locate and represent mixed num- bers on a number line, including on a partially-completed number line
	3	Counting and representing mixed numbers on a number line up to 3	• count in mixed numbers on a num- ber line up to 3
		(thirds)	 locate and represent mixed num- bers on a number line, including on a partially-completed number line
	4	Counting and representing frac- tions using a number line (any de- nominator)	• count and represent fractions using a number line (any denominator)
		Comparing and ordering fraction	IS
Compare and order frac- tions	2	Comparing and ordering im- proper fractions whose denom- inators are all multiples of the same number (greater than 1) using models	• order simple improper fractions whose denominators are all multiples of the same number using models, eg bar models
			• compare simple proper fractions whose denominators are all multiples of the same number using models, eg bar model
		Ordering and comparing simple proper fractions with different de- nominators using models as a scaffold (denominators 2, 3, 4, 5, 6, 7, 8)	• order fractions with different de- nominators, including on a number line marked with 0, $\frac{1}{2}$, 1; use models to support decisions
			• compare fractions using models and $\frac{1}{2}$ as a reference, eg 3/8 and 6/7, '3/8 is closer to one half and 6/7 is closer to one whole so 6/7 is larger'
Order tenths up to 1	1	Ordering tenths (up to 1 whole)	 order tenths in symbols and words
		Investigating equivalent fraction	IS
Investigating equivalent fractions	1	Investigating simple equivalent fractions less than 1 using con- crete materials and/or models	• use models such as number lines, fraction strips, fraction walls to iden- tify equivalent fractions
		(denominators 2, 3, 4, 5, 6, 8, 10)	• use concrete materials or models to show equivalent fractions, eg folding a strip of paper
	2	Investigating simple equivalent fractions less than 1 using con- crete materials and/or models (denominators 2, 3, 4, 6, 8)	• use a number line to identify equiv- alent fractions
			• use a fraction wall to identify equiv- alent fractions

Learning Journey	Steps	Content	Details
	3	Finding simple equivalent proper fractions (denominators 2, 3, 4, 5, 6, 8, 10)	\bullet recognise and show, using diagrams simple equivalent fractions with small denominators — eg 4/8 and $\frac{1}{2}$
	4	Finding simple equivalent proper fractions (denominators 2, 3, 4, 6, 8)	 recognise and generate simple equivalent fractions (denominators 2, 3, 4, 6, 8)
			• explain why the fractions are equiv- alent by using a visual fraction model
		Working with fractions	
Fractions greater than 1	1	Introducing mixed numbers for fractions with denominators 2, 3, 4, 5, 6, 8	• use mixed numbers to describe models of fractions between 1 and 3; identify the wholes and fractional parts (no conversion from improper to proper fractions)
			• identify and describe 'mixed num- bers' as having a whole-number part and a fraction part
		Adding unit fractions	· · · · · · · · · · · · · · · · · · ·
Adding unit fractions (same denominator)	1	Adding unit fractions with the same denominators (2, 4, 8) to make fractions up to and includ- ing 1 whole (with models)	• add unit fractions with the same denominator (2, 4, 8) to make frac- tions up to and including 1 whole us- ing models
			• solve problems involving adding fractions with the same denominator (2, 4, 8)
	2	Adding unit fractions with the same denominator (2, 4, 8) to make fractions up to and includ- ing 1 whole (without models)	• add unit fractions with the same denominator (2, 4, 8) to make frac- tions up to and including 1 whole without models
			\bullet solve unit fraction problems where the parts are unknown, eg $\frac{1}{4}$ plus missing fraction equals 1 whole
	3	Using models to add unit fractions with the same denominators (1- 20) to make fractions up to and in- cluding 1 whole	• use models to add unit fractions with the same denominator to make fractions up to and including one whole, eg $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$
Adding proper fractions (same denominator)	1	Adding simple fractions with the same denominator using models to make fractions up to and in- cluding 1 whole	• use models to add 2 or more frac- tions with the same denominator (up to and including one whole)
			• solve problems involving adding fractions with the same denominator
	2	Adding proper fractions with the same denominator using models to make fractions up to 1 whole	• add 2 or more fractions with the same denominator up to one whole (with and without models)
	3	Adding simple fractions with the same denominator using models (up to 3 wholes)	 use models to add 2 or more fractions with the same denominator solve problems involving adding fractions with the same denominator record answers greater than 1 as an improper fraction
			an improper traction

Learning Journey	Steps	Content	Details		
Subtracting unit fractions					
Subtracting unit frac- tions (same denomina- tor)	1	Subtracting unit fractions with the same denominator (2, 4, 8) in- cluding subtracting from 1 whole (with models)	• subtract unit fractions with the same denominator (2, 4, 8) up to 1 whole with the use of models		
		(with models)	• solve problems involving subtract- ing unit fractions with the same de- nominator (2, 4, 8) from 1 whole		
	2	Subtracting unit fractions with the same denominator (2, 4, 8) in- cluding subtracting from 1 whole	• subtract unit fractions with the same denominator (2, 4, 8) up to 1 whole without the use of models		
		(without models)	• solve unit fraction problems where the parts are unknown, eg 1 whole minus missing fraction equals $\frac{1}{4}$		
Subtracting proper frac- tions (same denomina- tor)	1	Subtracting simple fractions with the same denominator using models, including subtracting from 1 whole	• use models to subtract 2 or more fractions with the same denomina- tor (including subtracting from one whole)		
			• solve problems involving adding fractions with the same denominator		
	2	Subtracting proper fractions with the same denominator using models to make fractions within 1 whole	• subtract 2 or more fractions with the same denominator up to one whole (with and without models)		
	3	Subtracting simple fractions with the same denominator using	• use models to subtract 2 or more fractions with the same denominator		
		models (up to 5 wholes)	• solve problems involving adding fractions with the same denominator		
			 record answers greater than 1 as an improper fraction 		
		Addition and subtraction with fract	ions		
Add and subtract frac- tions (same denomina- tor)	1	Adding and subtracting simple fractions with the same denomi- nator using models to make frac- tions up to and including one whole	• use models to add or subtract 2 or more fractions with the same denom-inator		
			• solve problems involving adding or subtracting fractions with the same denominator		
	2	Adding and subtracting simple fractions with the same denom- inator using models (up to 3 wholes)	• use models to add or subtract 2 or more fractions with the same denom- inator		
			• solve problems involving adding or subtracting fractions with the same denominator		
			 record answers greater than 1 as an improper fraction 		
Estimation and addition strategies	1	1 Using estimation and addition strategies to find simple unit frac- tions of sets (denominators 2, 3, 4,	• estimate the value of a given unit fraction of a set or quantity; check us- ing repeated addition		
		5	5, 6, 8)	• use trial and improvement with repeated addition and grouping, eg $\frac{1}{3}$ of 18 as 5 + 5 + 5 = 15 so let's try 6 + 6 + 6 = 18	

Learning Journey	Steps	Content	Details
	2	Using estimation and addition strategies to find simple proper fractions of sets (denominators 2, 3, 4, 5, 6, 8)	• estimate the value of a given proper fraction of a set or quantity; check using repeated addition
			• use trial and improvement with re- peated addition and equal sharing, eg 2/3 of 18 as 5 + 5 + 5 = 15 so let's try 6 + 6 + 6 = 18 so 2/3 is 6 + 6
			• explore equivalence between halves, quarters, eighths and thirds and sixths
Fraction of a set	1	Finding the fraction of an amount by dividing into equal groups with models, within 100 (denomina-	• find the unit fraction of an amount by dividing an amount into equal groups
		tors up to 10)	 find the proper fraction of an amount by dividing an amount into equal groups
		Introducing hundredths	
Introducing hundredths	1	Introducing hundredths	 recognise that hundredths come from 100 equal parts
			• find hundredths of objects, sets and shapes
			 find the whole from the part
			 use language 'one hundredth', 'two hundredths' etc
			• use symbols to represent fractions 1/100, 2/100 etc
			• recognise that hundredths come from dividing 1-digit numbers or quantities by 100

2 Measures

Length				
		Length (metric)		
Learning Journey	Steps	Content	Details	
measure length (cm and m)	1	1 Measuring in metres and cen- timetres	• estimate and measure lengths and distances using metres and centime-tres	
			• explain strategies used to estimate lengths and distances, such as by referring to a known length, eg 'My handspan is 10 cm and my desk is 8 handspans long, so my desk is about 80 cm long'	
			• record lengths and distances us- ing abbreviations for metres and cen- timetres, eg 1 m 25 cm	
Estimating length (cm)	1	1 Estimating and measuring to the nearest centimetre	• estimate lengths and check by measuring; explain strategies used to estimate lengths and distances, such as by referring to a known length, eg 'My handspan is 10 cm and my desk is 8 handspans long, so my desk is about 80 cm long'	
			• measure lengths and distances to the nearest centimetre using a cen- timetre ruler	
			 record lengths and distances using the abbreviation for centimetres (cm) 	
Measure length (mm)	1	Introducing formal units for length: millimetres	• recognise the need for a formal unit smaller than the centimetre to mea- sure length	
			• develop a personal reference for the approximate length of 1 mm	
			• recognise and model that there are 10 mm in 1 cm, ie 10 mm = 1 cm	
			• estimate and use the millimetre as a unit to measure lengths to the near- est millimetre using a ruler	
			• record lengths using the abbrevia- tion for millimetres (mm), eg 5 cm 3 mm or 53 mm	
			 compare lengths with the same standard unit 	
Ordering length (mm, cm, m)	1	Ordering lengths in metres and centimetres	 order lengths and distances using metres and centimetres 	
	2	Ordering lengths in millimetres and centimetres	• compare lengths and distances us- ing millimetres and centimetres	
Comparing length (mm, cm, m)	1	Comparing lengths in metres and centimetres	• compare lengths and distances us- ing metres and centimetres	
	2	Comparing lengths in millimetres and centimetres	• compare lengths and distances us- ing millimetres and centimetres	
	3	Comparing lengths of mixed units	• measure and compare lengths of mixed units, eq 1 m 45 cm	

Learning Journey	Steps	Content	Details
Appropriate units of measurement (mm, cm,	1	Selecting appropriate units of measurement: metres, centime- tres, millimetres	• explore the appropriateness of units when measuring length
m)			• select and justify the most appro- priate metric unit to measure given lengths and distances
Converting length (cm,	1	Converting between metres and	• describe 1 m as 100 cm
m)	-	centimetres (whole numbers only)	• convert between metres and cen- timetres using whole numbers, eg 3 m is the same as 300 cm
			• record measurement equivalents in a table
			• explain the relationship between the size of a unit and the number of units needed
Add and subtract lengths	1	Adding and subtracting lengths	 add and subtract lengths of a single unit
	2	Adding and subtracting lengths of mixed units	• add and subtract lengths of mixed units, eg 1 m 45 cm + 2 m 15cm

Perimeter				
			Perimeter (metric)	
Learning Jour	ney	Steps	Content	Details
Measuring perimeter (cm)	1	Measuring perimeter in centime- tres	• calculate the perimeter of two- dimensional shapes placed on cen- timetre squares	
	2	Calculating the perimeter of a regular shape in centimetres	• calculate the perimeter of a regu- lar shape in centimetres using mental strategies such as repeated addition where all lengths are shown	
				• calculate the perimeter of a regular shape in cm using mental strategies such as repeated addition where one or more lengths are missing

Area			
Area (metric)			
Learning Journey	Steps	Content	Details
Area cm ² and m ²	n² and m² <u>1</u> Introducin the square	Introducing formal units for area: the square centimetre	• establish the need for a formal unit to measure area and introduce square centimetres
			• develop a sense of the area of 1 square centimetre and identify sur- faces that have area 'about 1 square centimetre', 'less than 1 square cen- timetre' and 'greater than 1 square centimetre'
			• identify everyday situations where square centimetres are an appropri- ate unit for measuring area
			• introduce the abbreviation cm ² for recording area in square centimetres

Learning Journey	Steps	Content	Details
	2	2 Introducing formal units for area: the square metre	• recognise the need for a larger for- mal unit to measure area and intro- duce square metres
			• develop a sense of the area of 1 square metre and identify surfaces that have area 'about 1 square me- tre', 'less than 1 square metre' and 'greater than 1 square metre'
			• identify everyday situations where square metres are an appropriate unit for measuring the area, eg floor of a room
			• recognise that a square metre need not be square in shape, eg cut a piece of cardboard that is 1 metre by 1 me- tre in half and join the shorter ends to make an area that is 2 metres by half a metre
			 introduce the abbreviation m² for measuring area in square metres
Area of rectangles cm ² and m ²	1	Estimating and measuring ar- eas of rectangles using efficient strategies and counting in square centimetres or metres	• measure the area of rectangles (in- cluding squares) using square cen- timetres and/or square metres (both tiling and using grid overlay) using whole number side lengths only
			• estimate areas of rectangles (in- cluding squares) in square centime- tres and/or square metres and then check by measuring
			 develop efficient strategies for counting square centimetres/metres when measuring areas of rectangles
			• draw possible rectangles on a grid to represent a given whole number rectangular area
	2	Comparing and ordering rectan- gular areas using counting of	 compare two areas by measuring using standard metric units
		standard metric units	• order three or more areas by mea- suring using standard metric units
			• choose the most appropriate unit cm ² or m ² and justify selection
Area of rectilinear fig-	1	Measuring areas of rectilinear fig-	• recognise area as additive
ures	_	ures by decomposing into rectan- gles and counting units	• decompose rectilinear figures into rectangles to find their area by tiling or using a grid overlay
		Area (customary measurement)
Area - square inch	1	Introducing formal units for area: the square inch	• establish the need for a formal unit to measure area and introduce square inches
			• develop a sense of the area of 1 square inch and identify surfaces that have area 'about 1 square inch', 'less than 1 square inch' and 'greater than 1 square inch'

Learning Journey	Steps	Content	Details
			• identify everyday situations where square inches are an appropriate unit for measuring area
			• introduce the abbreviations ' square in', 'sq in' and "in²' for recording area in square inches
Area - square foot	1	Introducing formal units for area: the square foot	• recognise the need for a larger for- mal unit to measure area and intro- duce square feet
			• develop a sense of the area of 1 square foot and identify surfaces that have area 'about 1 square foot', 'less than 1 square foot' and 'greater than 1 square foot'
			• identify everyday situations where square feet are an appropriate unit for measuring the area, eg floor of a room
Area - square inches and feet	1	Estimating and measuring ar- eas of rectangles using efficient strategies and counting in square inches or feet	• measure the area of rectangles (in- cluding squares) using square inches and/or square feet (both tiling and us- ing grid overlay) using whole number side lengths only
			• estimate areas of rectangles (in- cluding squares) in square inches and/or square feet and then check by measuring
			• develop efficient strategies for counting square inches/feet when measuring areas of rectangles
			• draw possible rectangles on a grid to represent a given whole-number rectangular area

Volume and Capacity			
Volume and capacity (metric)			
Learning Journey	Steps	Content	Details
Introducing volume and capacity (L)	1	Introducing formal units for vol- ume and capacity: litres	 recognise and explain the need for formal units to measure volume and capacity
			• develop a personal reference for one litre and fractions of 1 litre (quar- ters and halves); relate the litre to fa- miliar everyday containers, eg milk cartons
			• recognise that one-litre containers can be a variety of shapes
			• record volumes and capacities us- ing the abbreviation for litres (L)
Estimating, comparing and measuring volume (mL, L)	1	Estimating, comparing and mea- suring in litres	• estimate and measure capacities to the nearest litre

Learning Journey	Steps	Content	Details
			• compare and order 2 or more containers by capacity measured in litres, including the capacity of com- mercially packaged objects whose capacity is stated in litres
			• record volumes and capacities us- ing the abbreviation for litres (L)
	2	Estimating, comparing and mea- suring in mixed units of volume (L and mL)	• estimate and measure capacities to the nearest litre and millilitre
	3	Comparing and ordering mixed units of volume (L and mL)	 compare and order 2 or more containers by capacity measured in litres, including the capacity of com- mercially packaged objects whose capacity is stated in litres and millil- itres using inequality symbols (<, > or =)
Add and subtract ca- pacity (mL, L)	1	Adding and subtracting litres or millilitres	• add and subtract litre measure- ments
			• add and subtract millilitre measure- ments
Measuring volume in cm ²	1	Estimating and measuring vol- ume using cubic centimetre blocks	• use the cubic centimetre as a unit to measure volumes by packing small containers with cubic-centimetre blocks and describing in terms of layers, eg '2 layers of 10 cubic- centimetre blocks'
			• construct three-dimensional objects using cubic-centimetre blocks and count the blocks to determine the volumes of the objects; devise and explain strategies for counting blocks
			• compare the volumes of 2 or more objects made from cubic-centimetre blocks by counting blocks
			 record volumes using the abbrevia- tion for cubic centimetres (cm³)

Mass			
Mass (metric)			
Learning Journey	Steps	Content	Details
Mass (kg)	1	Introducing formal units for mass: the kilogram	• establish the need for formal units to measure mass and introduce the kilogram
			• develop a sense of the mass of 1 kilogram and identify objects that have mass 'about 1 kilogram', 'less than 1 kilogram', 'greater than 1 kilo- gram', eg a litre of milk is about 1 kilo- gram, a standard pack of flour is 1 kilogram
			• identify everyday situations where kilograms are an appropriate unit for measuring the mass

Learning Journey	Steps	Content	Details
			 introduce the abbreviation 'kg' for recording mass in kilograms
	2	Measuring mass in kilograms	• compare and order 2 or more objects by mass measured to the near- est kilogram using carried scales
			• estimate the number of objects that have a total mass of 1 kilogram and check by measuring
			• estimate mass using a personal ref- erence for a kilogram
			 record mass using the abbreviation 'kg'
			• compare masses using uniform in- formal units and the symbols >, =, <
			 compare masses using simple scal- ing by integers, eg 'five times as heavy'

Time			
Time			
Learning Journey	Steps	Content	Details
Telling the time - ana- logue	1	Telling time to five minutes (ana- logue)	• observe and describe the move- ment of the minute hand as time passes, including the time it takes for the minute hand to move from one numeral to the next and the time it takes for the minute hand to com- plete one revolution
			• observe and describe the move- ment of the hour hand as time passes, including the time it takes for the hour hand to move from 1 nu- meral to the next and the time it takes for the hour hand to complete 1 rev- olution
			• read time on analogue clocks to 5 minutes using the terms 'o'clock', 'past' and 'to', including 'half past', 'quarter past' and 'quarter to' and write in words
			• position or draw the hands on an analogue clock to show time to 5 minutes where the time is given using the terms 'o'clock', 'past' and 'to', in- cluding 'half past', 'quarter past' and 'quarter to'
Telling the time - digital	1	Telling time to five minutes (digi- tal)	• read time on 12-hour digital clocks to 5 minutes using the terms 'o'clock', 'past' and 'to', including 'half past', 'quarter past' and 'quarter to'
			• record times on analogue clocks to 5 minutes in 12-hour digital format
Learning Journey	Steps	Content	Details
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			• position or draw the hands on an analogue clock to show time to 5 minutes where the time is given in 12-hour digital format
			• connect 12-hour digital displays for times to 5 minutes to their cor- responding display on an analogue clock
Units of time	1	Recalling relationships between units of time	• know and recall that 1 hour = 60 minutes, 1 minute = 60 seconds
			• know and recall that 1 day = 24 hours
			• know and recall that 1 year = 365 days and that 1 leap year = 366 days and relate this to the rotation of the earth
			• know and recall that 1 week = 7 days, 1 fortnight = 2 weeks
			• solve problems relate to the rela- tionship between units of time
Comparing and ordering time	1	Comparing and ordering time in terms of seconds and minutes	 order time in terms of seconds and minutes
			• compare time in terms of seconds and minutes using <, > or =
Time and Roman nu- merals	1	Telling the time five minutes using Roman Numeral clocks	• observe and describe the move- ment of the minute hand as time passes, including the time it takes for the minute hand to move from 1 nu- meral to the next and the time it takes for the minute hand to complete 1 revolution
Start and end times	1	Calculating start and end times (12 and 24 hour)	• calculate the end time of events using start and elapsed times using models and tables
			• calculate the start time of events using elapsed and finishing times using models and tables
		Reading a calendar	
Writing dates	1	Writing dates	• identify a day/date on a calendar and write the date using the appro- priate notation eg 11/5/17

Temperature			
		Temperature (Celsius)	
Learning Journey	Steps	Content	Details
Introducing thermome- ters (Celsius)	1	Introducing thermometers	• estimate temperature using per- sonal reference
			• use a standard thermometer to de- termine whether temperature is ris- ing or falling
			• relate thermometers to the number line
			• introduce the unit of degrees to record temperatures

Learning Journey	Steps	Content	Details
			• recognise and read temperatures in everyday situations, eg weather report, cooking

3 Geometry

Introducing 2D shape			
Learning Journey	Stens	2D shape	Details
Quadrilaterals	1	Identifying side length properties of quadrilaterals	 measure and describe the side properties of the special quadrilat- erals, including parallelograms, rect- angles, rhombuses, squares, trapezi- ums and kites
			• identify and sort quadrilaterals by their side lengths and number of par- allel sides
	2	ldentifying right angles in quadri- laterals	• identify right angles in quadrilater- als
			• sort quadrilaterals by those with and without right angles
	3	Sorting and naming quadrilater- als	• sort the special quadrilaterals; ex- plain the attribute used to sort, eg an- gle, parallel sides, side lengths; clas- sify quadrilaterals into categories and sub-categories
			• identify and name the special quadrilaterals in different orienta- tions, including parallelograms, rect- angles, rhombuses, squares, trapezi- ums and kites
			 explore and explain the given names of the quadrilaterals, eg par- allelogram
Comparing and describ- ing two-dimensional	1	Comparing and describing two- dimensional shapes, including	 identify and name a shape given a description of its features
shapes		special quadrilaterals	• sort two-dimensional shapes using given attributes, eg number of sides, number of parallel sides
			 compare similarities and differ- ences between two-dimensional shapes, including the special quadri- laterals
	2	Identifying regular and irregular two-dimensional shapes	 identify a regular shape from a group of irregular shapes, eg a reg- ular pentagon in a group of irregular pentagons
	3	Recognising quadrilaterals that are not rhombuses, rectangles and squares	• recognise quadrilaterals that are not rhombuses, rectangles and squares
			• draw quadrilaterals that are not rhombuses, rectangles and squares
Identifying lines	1	ldentifying parallel sides in quadrilaterals	• manipulate and compare the spe- cial quadrilaterals; identify parallel sides
			 identify and sort quadrilaterals by their number of parallel lines (if any)

Learning Journey	Steps	Content	Details
	2	Identifying horizontal and vertical lines on shapes and objects	• identify horizontal and vertical lines on shapes and objects, eg, alphabet letters, numbers, shapes and envi- ronmental shapes
	3	Sorting horizontal and vertical lines on shapes and objects	 sort objects in a table based on properties
		Lines of symmetry	
Lines of symmetry	1	Recognising line symmetry of shapes	• define the line of symmetry of a two-dimensional shape as a line across which the shape can be folded into 2 matching parts
			 identify a line of symmetry in two- dimensional shapes
			• sort two-dimensional shapes ac- cording to whether they are symmet- rical or not

3D shape					
	3D shape				
Learning Journey	Steps	Content	Details		
Exploring prisms	1	Introducing rectangular prisms	• manipulate and describe the at- tributes of rectangular prisms		
			 recognise that a cube is a special kind of rectangular prism 		
			• recognise rectangular prisms in the environment and drawings		
	2	Exploring prisms	• manipulate and describe the at- tributes of prisms		
			 recognise that a cube is a special kind of prism 		
			 recognise prisms in the environ- ment and drawings 		
Comparing 3D shapes	1	Comparing, sorting and naming prisms and pyramids	• compare and sort prisms and pyra- mids by their geometric properties, eg number of edges, number of ver- tices		
			• describe and name prisms and pyramids by the shape of their base		
	2	Comparing three-dimensional objects including pyramids, prisms, cones, spheres and cylin- ders	• describe similarities and differ- ences between prisms (including cubes), pyramids, cylinders, cones and spheres, eg surfaces, faces, edges and vertices		
			• recognise and describe the use of three-dimensional objects in a vari- ety of contexts, eg buildings, packag- ing		
			• identify and name three- dimensional objects as prisms (including cubes), pyramids, cylin- ders, cones and spheres		

Learning Journey	Steps	Content	Details
Make 3D shapes	1	Making basic models of three- dimensional objects	 use a variety of materials to make models of prisms (including cubes), pyramids, cylinders, cones and spheres, given a three-dimensional object, picture or photograph to view identify and describe the two- dimensional shapes that can be found in a three-dimensional object, eg build a structure using concrete materials and describe it using geo- metric terms so that a partner will be able to build it
Exploring nets	1	Introducing nets of rectangular prisms	• deconstruct everyday packages that are prisms (including cubes) to create nets, eg cut up tissue boxes
			• make connections between nets and the two-dimensional shapes of the faces
			• recognise that a net requires each face to be connected to at least 1 other face
			• investigate, make and identify the variety of nets that can be used to create a particular prism, such as the variety of nets that can be used to make a cube
	2	Introducing nets of prisms	• deconstruct everyday packages that are prisms (including cubes) to create nets, eg cut up tissue boxes
			• make connections between nets and the two-dimensional shapes of the faces
			• recognise that a net requires each face to be connected to at least 1 other face
			• investigate, make and identify the variety of nets that can be used to create a particular prism, such as the variety of nets that can be used to make a cube
			 compare two-dimensional shapes to parts of three-dimensional objects in the environment

Angles			
		Angles	
Learning Journey	Steps	Content	Details
Introducing angles 1 Ir u	1	Introducing the concept of angles up to 180°	 understand and describe angles as an amount of turning, openings
		• identify angles in everyday situa- tions, eg door openings, designs, be- tween the arms of a clock	
			• recognise that angles are formed whenever 2 lines meet or when 2 rays meet at a common endpoint

Learning Journey	Steps	Content	Details
	2	Introducing right angles	 identify right angles on two- dimensional shapes and three- dimensional objects
			 identify right angles in pictures, de- signs and the environment
			 identify right angles in line dia- grams
			• use and interpret the symbol [] in di- agrams to represent a right angle
			• define perpendicular lines and iden- tify them in pictures, designs and the environment
			• recognise that a pair of perpendic- ular lines form 4 right angles
	3	Recognising angles as a descrip- tion of a turn	• recognise angles as a measure of a turn $(\frac{1}{2}, \frac{1}{4}, 3/4)$ and use appropri- ate language to describe the rotation such as quarter turn, half turn, clock- wise and anti-clockwise

Position, movement and direction					
	Transformations				
Learning Journey	Steps	Content	Details		
Introducing transforma- tions	1	Introducing transformations: Slides (translations)	• describe the process of performing a 'slide' and the similarities and dif- ferences between the original shape and the shape after it has undergone a 'slide'		
			• identify and describe a one-step slide of a shape using the term 'slide'		
			• perform a one-step slide of a shape using physical materials and record the result without the use of digital technology		
			 perform a one-step slide of a shape and record the result using digital technology 		
			 predict and draw the result of a one-step slide on a given shape 		
	2	Introducing transformations: Flips (reflections)	• describe the process of performing a 'flip' and the similarities and dif- ferences between the original shape and the shape after it has undergone a 'flip'		
			• identify and describe a one-step flip of a shape using the term 'flip'		
			• perform a one-step flip of a shape using physical materials and record the result without the use of digital technology		
			• perform a one-step flip of a shape and record the result using digital technology		

Learning Journey	Steps	Content	Details
			 predict and draw the result of a one-step flip on a given shape
	3	Introducing transformations: Turns (rotations)	• describe the process of performing a 'turn' and the similarities and dif- ferences between the original shape and the shape after it has undergone a 'turn' about a centre of rotation
			 recognise and describe turns as 'clockwise' or 'anti-clockwise'
			• identify and describe one-step quarter turns, half turns and three- quarter turns of a shape using the terms 'quarter turn', 'half turn', 'three- quarter turn'
			• perform one-step quarter turns, half turns and three-quarter turns of shapes using physical materials and record the results without the use of digital technology
			• perform one-step quarter turns, half turns and three-quarter turns of a shape and perform a one-step flip of a shape, recording the results us- ing digital technology
			• predict and draw the result of one- step quarter turns, half turns and three-quarter turns on a given shape
			• explore and describe the number of half turns and quarter turns required for a full-turn
		Reading maps	
Grid-referenced maps	1	Interpreting grid-referenced maps	• establish that grid referencing on maps allows for more accurate description of features/locations
			• understand the structure (letter then number, horizontal then vertical) and meaning of grid references (ev- erything in that grid square)
			 use grid references to describe fea- tures/locations on maps
			• identify features/locations on maps given their grid reference
	2	Drawing pathways on grid- referenced maps	• draw a path from 1 feature to an- other on a grid-referenced map given the grid reference of each feature
			• use grid references to describe a path from 1 feature to another on a grid-referenced map

4 Statistics and data

Data			
	Ctope	Representing data	Deteile
	Steps		Details
graphs/pictograms	1	graph with a scale of 1, 2, 5 or 10	• construct vertical and horizontal picture graphs with equal spacing
			• choose an appropriate title and la- bel the axis
			• choose an appropriate picture or symbol for a picture graph and state the key used (1, 2, 5 or 10)
			• solve comparison, sum and differ- ence (one-step and two-step prob- lems) problems related to the data display; make conclusions
	2	Reading data in a picture graph with a scale of 1, 2, 5, or 10	• ask and answer one step and two step questions, eg, 'how many more students like reading than art?'
			• make conclusions about data pre- sented in a column graph, eg 'Foot- ball is the most popular sport for stu- dents in Year 3 at our school'
			• compare column graphs with pic- ture graphs
			• evaluate simple statements made by others relating to data in a picture graph
Bar graphs and column charts	1	1 Representing data in a column graph with a scale of 1, 2, 5 or 10	• construct a vertical or horizontal column graph using grid paper for support, where appropriate use a scale of eg 2, 5, or 10 to 1
			• use graphing software to enter data and create column graphs that repre- sent data
			• mark equal spaces on axes, name and label axes, and choose appropri- ate titles for column graphs; use the terms 'horizontal axis', 'vertical axis' and 'axes' appropriately
			• ask and answer one-step and two- step questions, eg, 'How many more students like reading than art?'; make conclusions about data presented in a column graph, eg 'Football is the most popular sport for students in Year 3 at our school'
	2	Reading data in a column graph with a scale of 1, 2, 5 or 10	• ask and answer one-step and two- step questions, eg, 'How many more students like reading than art?'
			• make conclusions about data pre- sented in a column graph, eg 'Foot- ball is the most popular sport for stu- dents in Year 3 at our school'

Learning Journey	Steps	Content	Details
			 compare column graphs with pic- ture graphs evaluate simple statements made by others relating to data in a column
		Doading and interpreting	graph
	3	grouped and/or ordered data in a bar graph with one-to-one	• become familiar with grouped/ordered data in a bar graph
		correspondence	 ask and answer questions related to grouped or ordered data in a bar graph
Tables	1	Representing and reading cate- gory data in a table	 represent primary or secondary data in a given table using appropri- ate headings and layout
			• interpret data in a table; ask and answer summative and comparative questions
	2	Reading and interpreting tables and bar charts/graphs (block	 read data from tables and bar charts/graphs
		style)	 interpret data from tables and bar charts/graphs
			• draw conclusions related to the data in the display
	3	Collecting and recording category data in tables	• create a list of categories for effi- cient data collection and present in a table format, eg 'Which sport is the most popular with members of our class?'
			• sort data from a simple survey and create a list or table to organise the data, eg sort data on the number of children in a class.
			• determine which data should be collected and presented in the table
4	4	Constructing and interpreting ta- bles	 represent given or collected cate- gorical data in tables using appropri- ate headings and structure
			• interpret data in tables to solve problems; answer comparative and summative questions
Line plots/dot plots	1	Representing and reading line plots with both whole number and fractional data (halves or quarters)	• measure lengths using rulers marked with halves and fourths of an inch; measure a single object multiple times to the nearest whole inch, half inch and quarter inch
			• show the data by making a line plot, where the horizontal scale is marked off in appropriate units - whole num- bers, halves, or quarters
			 compare variations in the data dis- plays

Learning Journey	Steps	Content	Details
		Statistical investigation process	3
Conducting a simple statistical investigation	1	Conducting a simple statistical in- vestigation (tables, lists, picture graphs, bar graphs)	• determine what data to gather in order to investigate a statistical question
			 collect, record and sort data
			• represent category data in a table, list, picture graph or column graph (including many-to-one correspon- dence)
			• make a simple concluding state- ment based on data collected
		Cartesian products and multiplicat	tion
Relating Cartesian prod- ucts and multiplication	1	Relating Cartesian products and multiplication	• use rectangular displays or tree di- agrams to find the total number of combinations possible when given 2 characteristics, eg find the total num- ber of possible outfits given 3 pants and 2 t-shirts
			• relate multiplication to finding the total number of possible combina- tions

Probability and chance			
Introducing chance and probability			
Learning Journey	Steps	Content	Details
Chance experiments	1	Introducing chance experiments (with equal outcomes)	• use the term 'outcome' to describe any possible result of a chance ex- periment
			• predict and list all possible out- comes in a chance experiment, eg list the outcomes when 3 pegs are ran- domly selected from a bag containing an equal number of pegs of 2 colours
			• predict the number of times each outcome should occur in a chance ex- periment involving a set number of trials
	2	Conducting chance experiments (with equal outcomes)	• predict and list all possible out- comes in a chance experiment, eg list the outcomes when 3 pegs are ran- domly selected from a bag containing an equal number of pegs of 2 colours
			• keep a tally and graph the results of a chance experiment
			• explain any differences between expected results and actual results in a chance experiment; make state- ments that acknowledge 'random- ness' in a situation, eg 'The spinner could stop on any colour'
	3	Introducing chance experiments (with unequal outcomes)	• use the term 'outcome' to describe any possible result of a chance ex- periment

Learning Journey	Steps	Content	Details
			• predict and list all possible outcomes in a chance experiment, eg describe the probability of spinning red when you spin a spinner that has $\frac{1}{2}$ shaded yellow, $\frac{1}{4}$ shaded blue and $\frac{1}{4}$ shaded red
			• predict the number of times each outcome should occur in a chance ex- periment involving a set number of trials
	4	Conducting chance experiments (with unequal outcomes)	• predict and list all possible outcomes in a chance experiment, eg describe the probability of spinning red when you spin a spinner that has $\frac{1}{2}$ shaded yellow, $\frac{1}{4}$ shaded blue and $\frac{1}{4}$ shaded red
			 keep a tally and graph the results of a chance experiment
			• explain any differences between expected results and actual results in a chance experiment; make state- ments that acknowledge 'random- ness' in a situation, eg 'The spinner could stop on any colour'
	5	Introducing chance situations	• predict and record all possible com- binations in a chance situation, eg list all possible outfits when choos- ing from three different T-shirts and 2 different pairs of shorts
			• record and explain possible combi- nations using a list, table or diagram
			• repeat a chance experiment sev- eral times and discuss why the re- sults vary

Part II Grade 4

5 Number

Number and place value				
		Numbers up to 5 digits		
Learning Journey	Steps	Content	Details	
Reading and writing numbers up to 5 digits	1	Reading and writing numbers up to 5 digits	• apply an understanding of place value to read numbers up to 5 digits	
			• apply an understanding of place value to write numbers up to 5 digits	
Place value up to 5 digit numbers	1	Identifying the place value of dig- its in numbers up to 5 digits	• state the place value of digits in numbers of up to 5 digits	
			• pose and answer questions that extend place value understanding of numbers, eg 'What happens if I re- arrange the digits in the number 12 345?', 'How can I rearrange the digits to make the largest number?'	
			• represent and describe whole num- bers to 10 000 pictorially and sym- bolically	
	2	Finding the number 1000 more or 1000 less than a given number	• apply an understanding of place value to find the number 1000 more or 1000 less	
	3	Understanding the relationship between place value positions	• recognise that in a multi-digit num- ber a digit in 1 place represents 10 times as much as it represents in the place to its right	
			• recognise that in a multi-digit num- ber a digit in 1 place represents 1/10 of what it represents in the place to its left	
Comparing and ordering numbers to 5 digits	1	Comparing 5-digit numbers using words and symbols	• compare two 5-digit numbers using words and symbols <, =, >	
	2	Ordering numbers up to and in- cluding 5 digits	• arrange numbers of up to and in- cluding 5 digits in ascending and de- scending order	
	3	Ordering 5-digit numbers	• arrange numbers up to 5 digits in ascending and descending order	
Partitioning up to 5 digit numbers	1	Using place value to partition 5- digit numbers	• use place value to partition num- bers of up to 5 digits, eg 67 012 is 60 000 + 7000 + 10 + 2	
	2	Using non-standard partitioning with 5-digit numbers	• partition numbers of up to 5 digits in non-standard forms, eg 67 000 as 50 000 + 17 000	
Rounding 5 digit num- bers	1	Rounding 5-digit numbers	• round to the nearest 10, 100, 1000 or 10 000	
	2	Rounding up to 5-digit numbers to the nearest 10, 100 or 1000	• round up to the nearest 10, 100 or 1000	

Learning Journey	Steps	Content	Details
		Roman numerals to 100	
Reading and writing in Roman numerals	1	Reading and writing Roman nu- merals to 100 (I to C)	• read and write Roman numerals to 100 (I to C)
			• understand that over time the num- ber system changed to include the concept of 0 and place value
Rounding Roman nu- merals	1	Rounding Roman numerals up to 100 to the nearest 10	 round a Roman numeral to the nearest 10
	2	Rounding Roman numerals up to 1000 to the nearest 100	• model a Roman numeral to the nearest 100
		Negative numbers	
Negative numbers	1	Introducing negative integers	• count backwards through 0 to in- clude negative numbers
	2	Interpreting negative integers in context	• interpret negative integers in con- text eg, difference in temperature, or when finding the difference between two numbers, or halfway point
		Odd and even numbers	
Using odd and even numbers	1	Using the properties of odd and even numbers	• investigate and generalise the re- sult of adding, subtracting and mul- tiplying pairs of even numbers, pairs of odd numbers, or one even and one odd number, eg even + odd = odd, odd × odd = odd
			• explain why the result of a calcula- tion is even or odd with reference to the properties of the numbers used in the calculation
			• predict whether the answer to a calculation will be even or odd by using the properties of the numbers in the calculation
			• investigate the place value of digits within odd and even numbers

Addition and subtraction			
		Adding with models	
Learning Journey	Steps	Content	Details
Add a 1-digit to a 3-digit numbers - models	1	Adding a 1-digit number and a 3- digit number, no regrouping, us- ing models	• add a 1-digit number to a 3-digit number using models and tables, eg 234 + 3 = ?
		Subtracting with models	
Subtract a 1-digit from a 3-digit number - models	1	Subtracting a 1-digit number from a 3-digit number, no re- grouping, using models	• subtract a 1-digit number from a 3-digit number using models and tables, eg, 356 - 4 = ?
	2	Subtracting a 1-digit number from a 3-digit number (exchange within 10)	• subtract a 1-digit number from a 3-digit number with exchange within 10, using models and tables, eg 346 - 7 = ?

Learning Journey	Steps	Content	Details
	3	Solving word problems by sub- tracting a 1-digit number from a 3-digit number, exchange within 10	• solve word problems by subtracting a 1-digit number from a 3-digit num- ber, exchange within 10
	F	ormal method addition 2-digit num	ibers
Addition of 2-digit num- bers - no regrouping	1	Using a formal written algorithm for addition calculations up to two-digit numbers (no regroup- ing)	• apply algorithms to solve problems without regrouping, with the same number of places and with a differ- ent number of places
			• use estimation or reverse operation to check the reasonableness of solutions
Addition of 2-digit num- bers - regrouping	1	Using a formal written algorithm for addition calculations up to two-digit numbers (with regroup- ing)	• apply algorithms to solve problems with regrouping in 1 or more places, with the same number of places and with a different number of places
	F	ormal method addition 3-digit num	nbers
Addition up to 3-digit numbers - no regrouping	1	Using a formal written algorithm for addition calculations up to three-digit numbers (no regroup- ing)	• apply algorithms to solve problems without regrouping, with the same number of places and with a differ- ent number of places
			• use estimation or reverse operation to check the reasonableness of solu- tions
Addition up to 3-digit numbers - regrouping	1	Using a formal written algorithm for addition calculations with three-digit and one-digit num- bers (with regrouping)	• apply algorithms to solve problems with regrouping; include opportuni- ties for students to write their own al- gorithms with digits in correct place value positions; include word prob- lems
			• use estimation or reverse operation to check the reasonableness of solutions
	2	Using a formal written algorithm for addition calculations with three-digit and two-digit num- bers (with regrouping)	• apply algorithms to solve problems with regrouping in 1 or more places; include opportunities for students to write their own algorithms with dig- its in correct place value positions; in- clude word problems
			to check the reasonableness of solu- tions
	3	Using a formal written algorithm for addition calculations of two three-digit numbers (with re- grouping)	 apply algorithms to solve problems with regrouping in 1 or more places; include opportunities for students to write their own algorithms with dig- its in correct place value positions; in- clude word problems use estimation or reverse operation to check the reasonableness of solu-
			tions

Learning Journey	Steps	Content	Details
	4	Using a formal written algorithm for addition calculations up to three-digit numbers (with re- grouping)	• apply algorithms to solve problems with regrouping in 1 or more places, with the same number of places and with a different number of places; include opportunities for students to write their own algorithms with dig- its in correct place value positions; in- clude word problems
			• use estimation or reverse operation to check the reasonableness of solutions
	F	Formal method addition 4-digit num	າbers
Addition up to 4-digit numbers - no regrouping	1	Using a formal written algorithm for addition calculations up to four-digit numbers (no regroup- ing)	• apply algorithms to solve problems without regrouping, with the same number of places and with a differ- ent number of places
			• use estimation or reverse operation to check the reasonableness of solu- tions
Addition up to 4-digit numbers - regrouping	1	Using a formal written algorithm for addition calculations up to four-digit numbers (with regroup- ing)	 apply algorithms to solve problems with regrouping in 1 or more places, with the same number of places and with a different number of places; include opportunities for students to write their own algorithms with dig- its in correct place value positions; in- clude word problems use estimation or reverse operation to check the reasonableness of solu- tions
	2	Using a formal written algorithm for addition calculations for two 4-digit numbers (with one ex- change)	 apply algorithms to solve problems with one exchange, with the same number of places and with a different number of places using models (bar models, place value models, place value grid, bar models) solve problems using models (bar models, place value models, place value grid, bar models)
	F	ormal method addition 5-digit num	ıbers
Addition up to 5-digit numbers - no regrouping	1	Using a formal written algorithm for addition calculations up to five-digit numbers (no regroup- ing)	 apply algorithms to solve problems without regrouping, with the same number of places and with a different number of places; include opportuni- ties for students to write their own al- gorithms with digits in correct place value positions; include word prob- lems use estimation or reverse operation to check the reasonableness of solu- tions

Learning Journey	Steps	Content	Details
Addition up to 5-digit numbers - regrouping	1	Using a formal written algorithm for addition calculations up to five-digit numbers (with regroup- ing)	• apply algorithms to solve problems with regrouping in 1 or more places, with the same number of places and with a different number of places; include opportunities for students to write their own algorithms with dig- its in correct place value positions; in- clude word problems
			• use estimation or reverse operation to check the reasonableness of solutions
Earmal mathed to sale	F	ormal method to add 3 or more nur	nbers
3 or more numbers (2- digits)	1	for addition calculations of 3 or more addends up to two digits (with and without regrouping)	 apply algorithms with 3 or more addends with the same number of places and with a different number of places
Formal method to add 3 or more numbers (3- digits)	1	Using a formal written algorithm for addition calculations of 3 or more addends up to 3 digits (with and without regrouping)	• apply algorithms with 3 or more addends with the same number of places and with a different number of places; include number range that in- volves regrouping more than 1 ten or hundred; include word problems
			• use estimation to check the reason- ableness of solutions
Formal method to add 3 or more numbers (4- digits)	1	Using a formal written algorithm for addition calculations of 3 or more addends up to four digits (with and without regrouping)	• apply algorithms with 3 or more addends with the same number of places and with a different number of places; include number range that involves regrouping more than 1 ten, hundred or thousand; include word problems
Formal method to add 3 or more numbers (5- digits)	1	Using a formal written algorithm for addition calculations of 3 or more addends up to 5 digits (with and without regrouping)	• apply algorithms with 3 or more addends with the same number of places and with a different number of places; include number range that in- volves regrouping more than 1 in one or more places; include word prob- lems
	F	ormal method to subtract (no exch	ange)
Subtraction of up to 2- digit numbers (no ex- change)		Using a formal written algorithm to record subtraction calculations involving up to two-digit numbers (without decomposing)	 apply algorithms to solve problems without trading (decomposing), with the same number of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first number (minuend); include opportunities for students to write their own algorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation
			to check the reasonableness of solu- tions

Learning Journey	Steps	Content	Details
Subtraction of up to 3- digit numbers (no ex- change)	1	Using a formal written algorithm to record subtraction calculations involving up to three-digit num- bers (without decomposing)	 apply algorithms to solve problems without trading (decomposing), with the same number of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first number (minuend); include opportunities for students to write their own algorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation to check the reasonableness of solu-
	2	Using a formal written algorithm and models for addition calcula- tions of 2 three-digit numbers (no regrouping)	tions • add two 3-digit numbers using models, eg base 10, part-whole models, bar models
Subtraction up to 4-digit numbers (no exchange)	1	Using a formal written algorithm to record subtraction calculations involving up to four-digit numbers (without decomposing)	• apply algorithms to solve prob- lems without trading (decomposing), with the same number of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first number (minuend); in- clude opportunities for students to write their own algorithms with digits in correct place value positions and with the larger number first; include word problems
			to check the reasonableness of solu- tions
Subtraction up to 5-digit numbers (no exchange)	1	Using a formal written algorithm to record subtraction calculations involving up to five-digit numbers (without decomposing)	 apply algorithms to solve problems without trading (decomposing), with the same number of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first number (minuend); include opportunities for students to write their own algorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation
			to check the reasonableness of solu- tions

Learning Journey	Steps	Content	Details
	_	Formal method to subtract (exchar	nge)
Subtraction up to 2- digits (with decompos- ing)	1	Using a formal written algorithm to record subtraction calculations involving up to two-digit numbers (with decomposing)	 apply algorithms to solve problems with trading (decomposing) in one or more places, with the same num- ber of places for both numbers, with fewer places in the second number (subtrahend) and with and without one or more zeros in the first num- ber (minuend); include opportunities for students to write their own al- gorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation to check the reasonableness of solu- tions
Subtraction up to 3- digits (with decompos- ing)	1	Using a formal written algorithm to record subtraction calculations involving up to three-digit num- bers (with decomposing)	• apply algorithms to solve problems with trading (decomposing) in 1 or more places, with the same num- ber of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first num- ber (minuend); include opportunities for students to write their own al- gorithms with digits in correct place value positions and with the larger number first; include word problems
			• use estimation or reverse operation to check the reasonableness of solutions
Subtraction up to 4- digits (with decompos- ing)	decompos-	Using a formal written algorithm to record subtraction calculations involving up to four-digit numbers (with decomposing)	 apply algorithms to solve problems with trading (decomposing) in 1 or more places, with the same num- ber of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first num- ber (minuend); include opportunities for students to write their own al- gorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation to check the regeneration of activity
			tions
	2	for subtraction calculations for two 4-digit numbers (with one ex- change)	• apply algorithms to solve problems with one exchange, with the same number of places and with a differ- ent number of places. Use models to support calculation, eg place value model, place value grid, bar model
			 use estimation or reverse operation to check the reasonableness of solu- tions

Learning Journey	Steps	Content	Details
Subtraction up to 5- digits (with decompos- ing)	1	Using a formal written algorithm to record subtraction calculations involving up to five-digit numbers (with decomposing)	 apply algorithms to solve problems with trading (decomposing) in 1 or more places, with the same num- ber of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first num- ber (minuend); include opportunities for students to write their own al- gorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation to check the reasonableness of solu-
			tions
		Efficient addition strategies	
Efficient mental strate- gies for addition	1	Choosing efficient mental addi- tion strategies with numbers up to five digits	• apply place value and partition- ing to rearrange and regroup num- bers to assist with calculations, eg use rounding and compensating, bar model, jump strategies, split strate- gies, place value strategies or bridg- ing strategies
			• use a range of recording methods to solve addition problems, eg num- ber sentences, empty number line, re- grouping
Word problems using ef- ficient addition strate- gies	1	Solving one-step word problems using efficient mental addition strategies with numbers up to five digits	 solve addition word problems using mental strategies
	_	Efficient subtraction strategies	
Efficient mental strate- gies for subtraction	1	Choosing efficient mental sub- traction strategies with numbers up to five digits	 apply place value and partitioning to rearrange and regroup num- bers to assist with calculations, eg use rounding and compensating, jump strategies, split strategies, place value strategies or bridging strategies use a range of recording methods to solve subtraction problems, eg num
			ber sentences, empty number line, re- grouping
Subtract 3-digit num- bers using models	1	Subtracting 2 three-digit num- bers using efficient methods with no exchange	• subtract 2 three-digit numbers us- ing bar models and number lines
			• subtract 2 three-digit numbers us- ing base 10 representation
		Culture time 2 three disting	subtract 2 three-digit numbers us- ing column method
	2	bers using efficient methods with no exchange (column method)	• subtract 2 three-digit numbers us- ing column method using visual rep- resentation of calculation, eg place value, bar model, number line

Learning Journey	Steps	Content	Details
Subtract 4-digit num- bers using place value	1	Subtracting a 4-digit number from a 4-digit number using place value partitioning and effi- cient methods	 subtract a 4-digit number from a 4-digit number using the bar model method subtract a 4-digit number from a
			4-digit number using a part-whole model
			• subtract a 4-digit number from a 4- digit number using a number line
Word problems - effi- cient subtraction strate- gies	1	Solving word problems using ef- ficient mental subtraction strate- gies with numbers up to five dig- its	 solve subtraction word problems using mental strategies
	C	heck accuracy of addition & subtra	iction
Checking strategies	1	Checking accuracy of addition and subtraction calculations up to two 4-digit numbers	• use estimation to check the reason- ableness of answers to addition and subtraction calculations
		Estimating additions and subtract	ons
Estimate additions	1	Estimating additions to the near- est 1000	• round numbers to the nearest multi- ple of 1000 to estimate additions, eg 3546 + 2789 as 4000 + 3000 (with models)
Estimate subtractions	1	Estimating subtractions to the nearest 1000	• round numbers to the nearest multi- ple of 1000 to estimate additions, eg 3812 + 1489 as 4000 + 1000 (with models)
		Addition and subtraction with mult	iples
Adding multiples of 10	1	Adding a multiple of 10 to a 3- digit number with an exchange	• add a multiple of 10 to a 3-digit number not crossing the 100, using models and tables, eg, 269 + 40 = ?
Adding and subtracting	1	Adding and subtracting multiples	 add multiples of 1000
multiples of 1000		of 1000	 subtract multiples of 1000
		Comparing number sentences	
Comparing number sen- tences	1	Comparing 3-digit and 2-digit number sentences (not crossing 100) using inequality symbols	• compare number sentences using inequality symbols with addition, eg, 773 + 1 [<, >, =] 773 + 10
			• compare number sentences using inequality symbols with subtraction eg 773 – 1 [<, >, =] 773 – 10
			• compare number sentences using inequality symbols with subtraction and addition eg 773 – 1 [<, >, =] 773 + 10
		2-step problems	
2-step problems (addi-	1	Solving addition and subtraction	• read and interpret a word problem
tion and subtraction)		(max sum 1000)	• decide which operations and strategies to use and explain why
			 solve an addition and subtraction two-step problem

Learning Journey	Steps	Content	Details
		Patterns in addition	
Generating addition pat- terns from a given rule	1	Generating addition patterns from a given rule	• extend and create a number pat- tern that follows an addition rule, eg generate the pattern when given the starting number of 1 and the rule 'add 3'
			• extend and create a shape pat- tern that follows an addition rule, eg a growing pattern of triangles made using matchsticks
			• identify apparent features of that pattern that were not explicit in the rule
		Patterns in subtraction	
Generating subtraction patterns from a given rule	1	Generating subtraction patterns from a given rule	• extend and create a number pat- tern that follows a subtraction rule, eg generate the pattern when given the starting number of 30 and the rule 'subtract 3'
			• extend and create a shape pattern that follows a subtraction rule, eg a decreasing pattern of triangles made using matchsticks
			• identify apparent features of that pattern that were not explicit in the rule
		Patterns in addition and subtract	ion
Describing patterns	1	Describing patterns resulting from addition and subtraction involving at least one 3-digit number	• describe patterns resulting from addition involving at least one 3- digit number, eg, explain what has happened to the starting number 240 + ? = 377
			• describe patterns resulting from subtraction involving at least one 3- digit number eg explain what has happened to the starting number
		Inverse operations	
Finding unknown quan- tities	1	Using inverse operations to com- plete addition and/or subtraction number sentences (2-digit num- bers)	• complete number sentences involv- ing addition and subtraction by cal- culating missing numbers, eg find the missing numbers: ? + 55 = 83, ? - 15 = 19
			• use inverse operations to complete number sentences
			• justify solutions when completing number sentences
	2	Finding missing numbers where there are addition and/or subtrac- tion operations on both sides of the equals sign	• find the missing number in a num- ber sentence involving operations of addition or subtraction on both sides of the equals sign, eg 8+?=6+7

Multiplication and division			
		Skip counting by 50 and 25	
Skip counting by 50s	1	Content Counting by skip counting for- wards by 50s from any multiple of 50 up to 500	 use concrete materials, models, drawings, number lines/charts to skip count by 50s from any multiple of 50
			• use knowledge of the number se- quence to count in 50s from any mul- tiple of 50
			• recognise an error in the skip count- ing sequence
	2	Counting by skip counting back- wards by 50s from any multiple of 50 from 500	• use concrete materials, models, drawings, number lines/charts to skip count backwards by 50s
			• use knowledge of the number se- quence to count backwards in 50s from any multiple of 50
			• recognise an error in the skip count- ing sequence
	3	Counting by skip counting for- wards or backwards by 50s from any multiple of 50 from zero to 500	• use concrete materials, models, drawings, number lines/charts to skip count by 50s
			• use knowledge of the number se- quence to count forwards or back- wards in 50s from any multiple of 50
			• recognise an error in the skip count- ing sequence
Skip counting by 25s	1	Counting by skip counting for- wards by 25s from any multiple of 25 up to 10 000	• use concrete materials, models, drawings, number lines/charts to skip count by 25s from any multiple of 25
			• use knowledge of the number se- quence to count in 25s from any mul- tiple of 25
			• recognise an error in the skip count- ing sequence
	2	Counting by skip counting back- wards by 25s from any multiple of 25 from 10 000	• use concrete materials, models, drawings, number lines/charts to skip count backwards by 25s
			• use knowledge of the number se- quence to count backwards in 25s from any multiple of 25
			• recognise an error in the skip count- ing sequence
	3	Counting by skip counting for- wards or backwards by 25s from any multiple of 25 from zero to 10 000	• use concrete materials, models, drawings, number lines/charts to skip count by 25s
			• use knowledge of the number se- quence to count forwards or back- wards in 25s from any multiple of 25
			• recognise an error in the skip count- ing sequence

Learning Journey	Steps	Content	Details
		Count in multiples of 6, 7, 9, 25 & 1	000
Count in multiples of 6, 7, 9, 25 and 1000	1	Counting in multiples of 6, 7, 9, 25 and 1000	• count in multiples of 6, 7, 9, 25 and 1000
		Multiplication facts for 6 (up to 10	
Exploring multiplication by 6 (x10)	1	Exploring multiplication by 6 up to 60	 use concrete materials, models, drawings, number lines/charts to skip count by 6 from zero; explore pat- terns of the multiplication facts for 6 on a number chart relate multiplication by 6 to double multiplication by 3
Recalling multiplication facts (x6)	1	Recalling multiplication facts for 6	• recall the multiplication facts for 6
Recalling and using mul-	1	Recalling and using multiplication	• recall the multiplication facts for 6
tiplication facts for 6		facts for 6 (up to 60)	 solve multiplication problems with 6 including word problems
		Multiplication facts for 7 (up to 10)x)
Recalling multiplication facts (x7)	1	Recalling multiplication facts for 7	• recall the multiplication facts for 7
Recalling and using mul-	1	Recalling and using multiplication	• recall the multiplication facts for 7
tiplication facts for 7		facts for / (up to /0)	 solve multiplication problems with 7 including word problems
		Multiplication facts for 8 (up to 10	Dx)
Recalling multiplication facts (x8)	1	Recalling multiplication facts for 8	• recall the multiplication facts for 8
Recalling and using mul-	1	Recalling and using multiplication	• recall the multiplication facts for 8
tiplication facts for 8		facts for 8 (up to 80)	• solve multiplication problems with 8 including word problems
		Multiplication facts for 9 (up to 10	Dx)
Recalling multiplication facts (x9)	1	Recalling multiplication facts for 9	• recall the multiplication facts for 9
Recalling and using mul-	1	Recalling and using multiplication	• recall the multiplication facts for 9
tiplication facts for 9		facts for 9 (up to 90)	• solve multiplication problems with 9 including word problems
		Recalling multiplication facts (10 x	10)
Recalling multiplication	1	Recalling multiplication facts up	 recall facts in order
facts up to 10 x 10		to 10 x 10 with automaticity	 recall facts in random order
			• create a table or simple spread- sheet to record multiplication facts
		Multiplication facts for 6 (up to 12	2x)
Exploring multiplication by 6 (x12)	1	Exploring multiplication by 6 up to 72	• use concrete materials, models, drawings, number lines/charts to skip count by 6 from zero; explore pat- terns of the multiplication facts for 6 on a number chart
			• relate multiplication by 6 to double multiplication by 3
Recalling multiplication	1	Recalling and using multiplication	• recall the multiplication facts for 6
tacts for 6 (x12)		Tacts for 6 (up to 72)	• solve multiplication problems with 6 including word problems

Learning Journey	Steps	Content	Details
		Multiplication facts for 7 (up to 12	2x)
Exploring multiplication by 7 (x12)	1	Exploring multiplication by 7 up to 84	• use concrete materials, models, drawings, number lines/charts to skip count by 7 from zero; explore pat- terns of the multiplication facts for 7 on a number chart
Recalling multiplication	1	Recalling and using multiplication	• recall the multiplication facts for 7
facts for 7 (x12)		facts for 7 (up to 84)	• solve multiplication problems with 7, including word problems
		Multiplication facts for 8 (up to 12	2x)
Exploring multiplication by 8 (x12)	1	Exploring multiplication by 8 up to 96	• use concrete materials, models, drawings, number lines/charts to skip count by 8 from zero; explore pat- terns of the multiplication facts for 8 on a number chart
			• relate multiplication by 8 to double multiplication by 4
Recalling multiplication	1	Recalling and using multiplication	• recall the multiplication facts for 8
facts for 8 (x12)		facts for 8 (up to 96)	 solve multiplication problems with 8 including word problems
		Multiplication facts for 9 (up to 12	2x)
Recalling multiplication	1	Recalling and using multiplication	• recall the multiplication facts for 9
facts for 9 (x12)		facts for 9 (up to 108)	 solve multiplication problems with 9, including word problems
Exploring multiplication by 9 (x12)	1	Exploring multiplication by 9 up to 108	• use concrete materials, models, drawings, number lines/charts to skip count by 9 from zero; explore pat- terns of the multiplication facts for 9 on a number chart
			• relate multiplication by 9 to multipli- cation by 10 (multiply by 10 and then subtract the extra group)
		Multiplication facts for 11 (up to 1	2x)
Multiplying by 11 (x12)	1	Multiplying by 11 (up to 12x)	 recall the multiplication facts for 11
		Multiplication facts for 12 (up to 1	2x)
Multiplying by 12 (x12)	1	Multiplying by 12 (up to 12x)	 recall the multiplication facts for 12
		Dividing by 6 (within 10 times tab	es)
for 6	1	Recalling division facts for 6	• recall the division facts for 6
Recalling and using divi-	1	Recalling and using division facts	 recall the division facts for 6
sion facts for 6 (X10)		for 6 up to 60	 solve division problems with 6 in- cluding word problems
		Dividing by 7 (within 10 times tab	les)
Recalling division facts for 7	1	Recalling division facts for 7	• recall the division facts for 7
Recalling and using divi-	1	Recalling and using division facts	 recall the division facts for 7
Sion facts for 7 (X10)			 solve division problems with 7 in- cluding word problems
		Dividing by 8 (within 10 times tab	es)
Recalling division facts for 8	1	Recalling division facts for 8	• recall the division facts for 8

Learning Journey	Steps	Content	Details
Recalling and using divi- sion facts for 8 (x10)	1	Recalling and using division facts for 8 up to 80	• recall the division facts for 8
			 solve division problems with 8 in- cluding word problems
		Dividing by 9 (within 10 times tab	les)
Recalling division facts for 9	1	Recalling division facts for 9	 recall the division facts for 9
Recalling and using divi-	1	Recalling and using division facts	 recall the division facts for 9
sion facts for 9 (x10)		for 9 up to 90	 solve division problems with 9 in- cluding word problems
		Dividing by 6 (within 12 times tab	les)
Dividing by 6	1	Dividing by 6 up to 72	• model and describe the related mul- tiplication and division facts for 6 us- ing models, drawings or manipula- tives, eg 6 x 3 = 18 and 18 divided by $3 = 6$
			• relate division to how many (whole) times the divisor goes into the divi- dend
Recalling and using divi-	1	Recalling and using division facts	• recall the division facts for 6
sion facts for 6 (x12)		for 6 up to 72	 solve division problems with 6 in- cluding word problems
		Dividing by 7 (within 12 times tab	les)
Dividing by 7	1	Dividing by 7 up to 84	• model and describe the related mul- tiplication and division facts for 7 us- ing models, drawings or manipula- tives, eg 7 x $3 = 21$ and 21 divided by $3 = 7$
			• relate division to how many (whole) times the divisor goes into the divi- dend
Recalling and using divi-	1	Recalling and using division facts	• recall the division facts for 7
sion facts for 7 (x12)		for 7 up to 84	 solve division problems with 7, in- cluding word problems
		Dividing by 8 (within 12 times tab	les)
Dividing by 8	1	Dividing by 8 up to 96	• model and describe the related mul- tiplication and division facts for 8 us- ing models, drawings or manipula- tives, eg 8 x 3 = 24 and 24 divided by 3 = 8
			• relate division to how many (whole) times the divisor goes into the divi- dend
Recalling and using divi-	1	Recalling and using division facts	• recall the division facts for 8
sion facts for 8 (x12)		τοr 8 up το 96	• solve division problems with 8 in- cluding word problems
		Dividing by 9 (within 12 times tab	les)
Dividing by 9	1	Dividing by 9 up to 108	• model and describe the related mul- tiplication and division facts for 9 us- ing models, drawings or manipula- tives, eg 9 x $3 = 27$ and 27 divided by $3 = 9$

Learning Journey	Steps	Content	Details
			• relate division to how many (whole) times the divisor goes into the divi- dend
Recalling and using divi-	1	Recalling and using division facts	 recall the division facts for 9
sion facts for 9 (x12)		for 9 up to 108	 solve division problems with 9, in- cluding word problems
		Dividing by 11 (within 12 times tak	oles)
Dividing by 11	1	Dividing by 11	 recall the division facts for 11
			 solve division problems with 11, in- cluding word problems
		Dividing by 12 (within 12 times tak	oles)
Dividing by 12	1	Dividing by 12	 recall the division facts for 12
			• solve division problems with 12, in- cluding word problems
		Multiplying and dividing (x10)	
Multiplying and dividing by 6 (x10)	1	Multiplying and dividing by 6 up to 60	• recall the multiplication facts and related division facts for 6
			 solve multiplication and division problems with 6, including word problems
Multiplying and dividing by 7 (x10)	1	Multiplying and dividing by 7 up to 70	 recall the multiplication facts and related division facts for 7
			 solve multiplication and division problems with 7, including word problems
Multiplying and dividing by 8 (x10)	1	Multiplying and dividing by 8 up to 80	• recall the multiplication facts and related division facts for 8
			 solve multiplication and division problems with 8, including word problems
Multiplying and dividing by 9 (x10)	1	Multiplying and dividing by 9 up to 90	• recall the multiplication facts and related division facts for 9
			 solve multiplication and division problems with 9, including word problems
		Multiplying and dividing (x12)	
Multiplying and dividing by 6 (x12)	1	Multiplying and dividing by 6 up to 72	• recall the multiplication facts and related division facts for 6
			 solve multiplication and division problems with 6, including word problems
Multiplying and dividing by 7 (x12)	1	Multiplying and dividing by 7 up to 84	• recall the multiplication facts and related division facts for 7
			 solve multiplication and division problems with 7, including word problems
Multiplying and dividing by 8 (x12)	1	Multiplying and dividing by 8 up to 96	• recall the multiplication facts and related division facts for 8
			 solve multiplication and division problems with 8, including word problems

Learning Journey	Steps	Content	Details
Multiplying and dividing by 9 (x12)	1	Multiplying and dividing by 9 up to 108	• recall the multiplication facts and related division facts for 9
			• solve multiplication and division problems with 9, including word problems
Multiplying and dividing by 11 (x12)	1	Multiplying and dividing by 11	• recall the multiplication facts and related division facts for 11
			 solve multiplication and division problems with 11, including word problems
Multiplying and dividing by 12 (x12)	1	Multiplying and dividing by 12	• recall the multiplication facts and related division facts for 12
			 solve multiplication and division problems with 12, including word problems
		Commutative multiplication (x10))
Commutative law of multiplication (x10)	1	Using the commutative law of multiplication up to 10 x 10	• use the commutative law of multi- plication, eg 7 x 9 = 9 x 7
		Associative multiplication (x10)	
Associative law of multi- plication (x10)	1	Using the associative law of mul- tiplication up to 10 x 10	• use the associative law of multipli- cation up to 10 x 10
		Distribututive multiplication (x10))
Distribututive law of multiplication (x10)	1	Using the distributive law up to 10 x 10	• use the distributive law up to 10 x 10
		Commutative multiplication (x12	2)
Commutative law of multiplication (x12)	1	Using the commutative law of multiplication up to 12 x 12	• use the commutative law of multi- plication, eg 7 x 12 = 12 x 7
	С	ommutative & associative multiplic	ation
Commutative and asso- ciative multiplication	1	Multiplying 3 or more single-digit numbers using the commutative	• apply the commutative law of mul- tiplication
		and associative laws	• explore and apply the associative law of multiplication, eg $2 \times 3 \times 5 = 2$ $\times 5 \times 3 = 10 \times 3 = 30$
		Multiplication: 1-digit by 1-digit	
1-digit by 1-digit: Rounding and com- pensating	1	Representing and multiplying two 1-digit numbers using rounding and compensating	• represent with models/diagrams and use known facts to solve mul- tiplication problems by adding on or taking off, eg 5 x 10 is 50, so 5 x 9 is 5 less, which is 45
			• explain and justify the use of the strategy
1-digit by 1-digit: Dou- bling and related facts	1	Representing and multiplying two 1-digit numbers using doubling and related facts	• represent with models/diagrams and use the relationship between multiplication facts, eg the multipli- cation facts for 6 are double the mul- tiplication facts for 3
			• explain and justify the use of the strategy

Learning Journey	Steps	Content	Details
1-digit by 1-digit: Re- peated doubling	1	Representing and multiplying two 1-digit numbers using repeated doubling	• represent with models/diagrams and use doubling and repeated dou- bling as a strategy to multiply by 2, 4 and 8, eg 7 x 8 is double 7, double again and then double again
			• explain and justify the use of the strategy
1-digit by 1-digit: Fac- toring	1	Representing and multiplying two 1-digit numbers using factorising	• represent with models/diagrams and split factors, eg 5 x 8 is the same as 5 x 2 x 4, which becomes 10 x 4
			• explain and justify the use of the strategy
		Multiplication: 2-digit by 1-digit	t
2-digits by 1-digit: place value understanding	1	Representing and multiplying a 2- digit number by a 1-digit number using place value understanding and the distributive law	• represent and use place value to solve a multiplication fact, eg multi- plying the tens and then the units, eg 7×19 : 7 tens + 7 nines is 70 + 63, which is 133
			• explain and justify the use of the strategy
2-digits by 1-digit: area model	ea 1 ^N	Multiplying a 2-digit number by a 1-digit number using an area	• use area model to solve multiplica- tion problems
		model	• explain and justify the use of the strategy
2-digits by 1-digit: Dou- bling and related facts	1	Representing and multiplying a 2- digit number by a 1-digit number using doubling and related facts	• represent and use doubling to mul- tiply a 2-digit and 1-digit number, eg 41×6 is 41×3 , which is 123, and then double to obtain 246
			• explain and justify the use of the strategy
	2	Representing and multiplying a 2- digit number by a 2, 4 or 8 using doubling and repeated doubling	• represent and use repeated doubling as a strategy to multiply, eg 23×2 is double 23, 23×4 is double 23 and double again, 23×8 is double 23, double again and double again
			• explain and justify the use of the strategy
2-digits by 1-digit: Fac- toring	1	1 Representing and multiplying a 2- digit number by a 1-digit number using factorising (the associative law)	• represent and use factorising (factorise the larger number), eg $18 \times 4 = 9 \times 2 \times 4 = 9 \times 8 = 72$
			• explain and justify the use of the strategy
2-digits by 1-digit: Columnar multiplication	1	Multiplying 2-digit numbers by 1-digit numbers using the con- tracted algorithm (no regrouping)	• multiply the ones, then the tens, without regrouping
	2	Multiplying 2-digit numbers by 1- digit numbers using the columnar contracted algorithm (2, 3, 4, 5, 8) no regrouping	• multiply 2-digit numbers by 1-digit numbers using the columnar con- tracted algorithm (2, 3, 4, 5, 8) no re- grouping, eg multiply the ones, then the tens
	3	Multiplying 2-digit numbers by 1-digit numbers using the con- tracted algorithm (with regroup- ing)	• multiply 2-digit numbers by 1-digit numbers using the contracted algo- rithm (with regrouping)

Learning Journey	Steps	Content	Details
		Multiply/divide with multiples	
Mult/div problems with multiples of 10 and 100	1	Representing and using known facts to solve multiplication and division problems with multiples of 10 and 100	• represent with models/diagrams and use known facts and place value understanding to solve multiplication problems with multiples of 10 or 100, eg 3 x 6 = 18 so 3 x 600 = 1800
			• use known facts and place value understanding to solve division prob- lems with multiples of 10 or 100, eg $18 \div 6 = 3$ so $1800 \div 600 = 3$
			• explain and justify the use of the strategy
Multiply 2-digit multiples of 100	1	Representing and using known facts to multiply 2 multiples of 100	• represent with models/diagrams and use known facts and place value understanding to multiply 2 multiples of 100, eg 300 x 400 = 3 x 4 = 12 so 300 x 400 = 1200
			• know that multiplying by 100 shifts the digits 2 places to the left
Multiply 2-digit numbers by 100	1	Representing and using known facts to multiply 2-digit numbers by 100	• represent with models/diagrams and use known facts and place value understanding to multiply 2- digit numbers by 100, eg 13 x 100 = 10 x 100 + 3 x 100
			• know that multiplying by 100 shifts the digits 2 places to the left
		Divide:2-digit by 1-digit (no remain	der)
Inverse relationship mul- tiplication and division	1	Dividing a 2-digit number by a 1- digit number using the inverse re- lationship of multiplication and di- vision (no remainders)	• divide a 2-digit number by a 1-digit number using the inverse relation- ship of multiplication and division, eg $63 \div 9 = 7$ because $7 \times 9 = 63$
Halving and repeated halving (no remainders)	1	Multiplying and dividing by 12	• recall the multiplication facts and related division facts for 12
			• solve multiplication and division problems with 12, including word problems
Related facts (no re- mainders)	1	Using the commutative law of multiplication up to 12 x 12	• use the commutative law of multi- plication, eg 7 x 12 = 12 x 7
Dividing a 2-digit by a 1- digit number (models)	1	Dividing 2-digit numbers by a 1- digit number by partitioning (no exchange, no remainders)	• divide 2-digit numbers by a 1-digit number using partitioning and place value grids, part-whole models etc
	2	Dividing 2-digit numbers by a 1- digit number by partitioning (with exchange, no remainders)	• divide 2-digit numbers by a 1-digit number using partitioning and place value grids, part whole models etc
		Introducing remainders in divisio	n
Introducing remainders in division	1	Introducing remainders in division problems	• model division, including where the answer involves a remainder, using concrete materials
			• explain why a remainder is ob- tained in answers to some division problems

Learning Journey	Steps	Content	Details
			• use mental strategies to divide a 2- digit number by a 1-digit number in problems for which answers include a remainder
			• record remainders to division prob- lems in words
			• interpret the remainder in the con- text of a word problem
	2	Dividing 2-digit numbers by a 1- digit number by partitioning (with remainders)	• divide 2-digit numbers by a 1-digit number using partitioning and num- ber lines, place value grids, part- whole models etc
		Effective multiplication strategie	S
Effective multiplication strategies	1	Selecting efficient strategies to solve multiplication problems	• select and use a variety of men- tal and informal written strategies to solve multiplication problems
		Effective division strategies	
Efficient division strate- gies	1	Selecting efficient strategies to solve division problems	• select and use a variety of men- tal and informal written strategies to solve division problems
			 apply the inverse relationship of multiplication and division to justify answers
			• check the answer to a word prob- lem using digital technologies
			• record mental strategies accurately
		Division: 3-digit by 10 (no remained	der)
Dividing 3-digit numbers by 10	1	Representing and using known facts to divide 3-digit numbers by 10	• represent with models/diagrams and use known facts and place value understanding to divide 2-digit num- bers by 10, eg 460 ÷10 = 46
			• know that dividing by 10 shifts the digits 1 place to the right
		Factors, multiples and prime numb	pers
Multiples up to 100	1	Introducing multiples up to 100	 find 'multiples' for a given whole number
Factors up to 100	1	Introducing factors for numbers up to 100	 determine 'factors' for a given whole number
			 connect number relationships in- volving multiplication to factors of a number
		Multiplication patterns	
Exploring number pat- terns	1	Investigating number sequences involving multiples of 3, 4, 6, 7, 8	• generate number patterns using multiples of 3, 4, 6, 7, 8 and 9
		and 9	• investigate visual number patterns on a number chart
			• find missing terms in a number se- quence
	2	Exploring number patterns result- ing from performing multiplica- tion	• find a higher term in a number pat- tern resulting from performing multi- plication, given the first few terms, eg determine the next term in the pat- tern 4, 8, 16, 32, 64,

Learning Journey	Steps	Content	Details
			• describe how the next term in a number pattern is calculated, eg 'Each term in the pattern is double the previous term'
			• find missing terms in a number se- quence
Generating multiplica- tion patterns from rules	1	Generating multiplication pat- terns from a given rule	• extend and create a number pat- tern that follows a rule, eg 'start at 1 and multiply each term by 2 to get the next term' generates the sequence 1, 2, 4, 8, 16, 32, 64,
			• identify apparent features of that pattern that were not explicit in the rule
		Inverse facts in multiplication	
Inverse facts in multipli- cation	1	Using inverse facts	• relate multiplication facts to their in- verse division facts
			 relate division facts to their inverse multiplication facts
		Equality in products	
Finding equality in prod- ucts	1	Using the conventions of multipli- cation number sentences	• use the term 'product' to describe the result of multiplying 2 or more numbers
			• use the equals sign to record equiv- alent number relationships involving multiplication, and to mean 'is the same as', rather than to mean to per- form an operation
		Problem solving: multiplication/divi	sion
One-step multiplication and division word prob- lems	1	Expressing given one-step word problems as a multiplication or division number sentences and solving	• represent and solve multiplication and division word problems (up to 10 x 10 multiplication ad division facts) using number sentences with a sym- bol for the unknown, eg 'Anne spent \$28 dollars on tickets to a show for her friends. If 7 friends are coming to the show, what was the cost of each ticket?'
			• discuss whether it is more appropri- ate to represent the problem using x or ÷ in order to calculate the solution
Multi-step multipli- cation/division word problems	1	Solving two-step multiplication and/or division word problems, in- cluding correspondence problems	• solve two-step word problems in context involving multiplication and division; choose the appropriate op- eration
	2	Solving multi-step multiplication and/or division word problems	• solve multi-step word problems in- volving multiplication and division
			 represent unknown with a letter
Place value and related calculations	1	Using place value and related cal- culations to solve multiplication problems	• use place value and related calcula- tions to solve problems, eg, $6 \times 2 = 12$, $60 \times 2 = 120$. Because one number is ten times bigger, the answer will be ten times bigger

Learning Journey	Steps	Content	Details
		Comparisons with multiplication	1
Describe comparisons using multiplication language	1	Describing comparisons using the language of multiplication	• describe comparisons using the language of multiplication, eg 35 = 5 x 7 as 35 is 5 times as many as 7 and 7 times as many as 5
Solving word problems involving comparisons	1	Solving word problems involving comparisons	 solve word problems involving comparisons

Money				
Money (AUS)				
Learning Journey	Steps	Content	Details	
Money: dollars and cents	1	Using decimals to represent money	• recognise that 1 cent is one- hundredth of a dollar and connect decimal notation to money values in dollars and cents	
			• calculate the total value of a group of notes and coins and record this value using decimal notation and the symbol \$	
			 combine amounts of notes and coins to make a given amount of money in decimal notation 	
			• use the symbols \$ and c correctly when recording amounts of money	
		Money (US)		
Addition and subtraction with money (US)	1	Using money: Addition and sub- traction problems I United States	• use addition and subtraction to solve a variety of problems involving purchases of 2 or more items, includ- ing calculating change, and record the value using a decimal point and the symbol \$	
Money (UK)				
Addition and subtraction with money (UK)	1	Using money: Addition and sub- traction problems I United King- dom	• use addition and subtraction to solve a variety of problems involving purchases of 2 or more items, includ- ing calculating change, and record the value using a decimal point and the symbol £	

Fractions				
		Counting in fractions		
Learning Journey	Steps	Content	Details	
Counting fractions on a number line	1	Counting in fractions on a number line (denominators up to 12)	• count in proper and improper frac- tions (starting on any fraction) using number lines and models, eg, 7/8, 8/8, 9/8, 10/8	
			• create sequences of fractions fol- lowing the pattern provided	

Learning Journey	Steps	Content	Details
		Equivalent fractions to 1 whole	
Equivalent fractions up to 1 whole	1	Investigating equivalent fractions up to and including 1 whole us- ing area models (denominators 2, 4 and 8; 3 and 6; 5 and 10 and 100)	• model, compare and represent the equivalence of fractions with re- lated denominators by redividing the whole, using identical area models, fraction walls and bar models
	2	Investigating equivalent fractions up to and including 1 whole using a number line (denominators 2, 4 and 8; 3 and 6; 5 and 10 and 100)	• model, compare and represent equivalent fractions with related de- nominators using a number line
			• solve word problems using equiv- alent fractions to make compar- isons, including using measurements of length, eg Which is longer, $\frac{1}{2}$ a me- tre or 3/4 of a metre?
	3	Investigating equivalent fractions up to and including 1 whole using multiplication (denominators of 2, 4 and 8; 3 and 6; 5, 10 and 100)	• model, compare and represent the equivalence of fractions by recognis- ing the factorial relationship between the numerators and denominators
			 create equivalent fractions using multiplication
		Comparing and ordering fractior	าร
Comparing and ordering fractions	1	Comparing and ordering unit fractions with different de- nominators using models and diagrams	• compare and order common unit fractions using models and diagrams for support
			• compare and order common frac- tions with different denominators (halves, thirds, quarters, fifths, sixths, sevenths, eighths)
	2	Comparing and ordering common fractions with different denom- inators using models and dia- grams	 compare and order common frac- tions using models and diagrams for support
			• compare and order common frac- tions with different denominators (halves, thirds, quarters, fifths, sixths, sevenths, eighths)
	3	Comparing and ordering simple fractions with the same numera- tor up to 1	• compare simple fractions with the same numerator up to 1
			• order simple fractions with the same numerator up to 1
		Comparing fractions with the same numerator up to 1 using >, =, < (denominators 2, 3, 4, 6, 8)	• compare fractions with the same numerator up to 1 using >, =, < (de- nominators 2, 3, 4, 6, 8)
		Comparing fractions with the same denominator up to 1 using >, =, < (denominators 2, 3, 4, 6, 8)	• compare fractions with the same denominator up to 1 using >, =, < (denominators 2, 3, 4, 6, 8)
		Decomposing fractions	
Decomposing fractions	1	Decomposing proper fractions and fractions equal to 1	• decompose a fraction into a sum of fractions with the same denominator in more than 1 way, eg $3/8 = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $3/8 = 2/8 + \frac{1}{3}$

Learning Journey	Steps	Content	Details
		Decomposing improper fractions and fractions greater than 1	• decompose a fraction into a sum of fractions with the same denominator in more than 1 way, eg 4 and $3/8 = 2$ and $\frac{1}{8} + 2$ and $2/8$
		Fraction of a quantity	
Finding a unit fraction of a quantity	1	Finding a unit fraction of a quan- tity using multiplication and di- vision facts (denominators 2–10 and multiples of 10)	• calculate unit fractions of collec- tions where the result is a whole number, eg calculate $1/5$ of 30 as 5 x ? = 30 or 30 divided by 5 = ?
			 model and explain solutions
Calculation the wheele		Calculating the whole quantity	
using models	1	solving problems using bar mod- els and tables to calculate the whole (including unit and non- unit proper fractions)	• calculate the whole through count- ing the quantity of parts (using bar models), eg, $\frac{1}{4}$ = 5, 2/4 =10, 3/4 = 15, 4/4 or 1 whole = 20
			• calculate the whole through com- pleting a table of whole, unit fraction and non-unit fraction, eg, the whole is 24, $\frac{1}{6}$ of 24 = 4, 5/6 of 24 = 20
	2	Solving word problems using proper fractions including unit and non-unit fractions (denomi- nator less than 10)	• solve word problems using proper fractions including unit and non-unit fractions (denominator less than 10)
		Tenths and hundredths	
Counting in tenths	1	Counting in tenths	• count up in tenths using proper fractions and mixed numerals (start- ing from any multiple of tenths), in- cluding on a number line
			• count down in tenths using proper fractions and mixed numerals (start- ing from any multiple of tenths), in- cluding on a number line
			 represent counting in tenths using number lines and models
Counting in hundredths	1	Counting in hundredths	• count up in hundredths using proper fractions and mixed numerals (starting from any multiple of tenths), including on a number line
			• count down in hundredths using proper fractions and mixed numerals (starting from any multiple of tenths) , including on a number line
			• represent counting in hundredths using number lines and models
Counting in hundredths as fractions	1	Counting in hundredths as frac- tions	• count up in hundredths using proper fractions (starting from any multiple of hundredth), including on a number line
			• count down in hundredths using proper fractions (starting from any multiple of hundredth), including on a number line

Decimals			
Learning Journey	Stope	Introducing decimals	Details
Introducing decimal no- tation	1	Introducing decimal notation	 identify decimal fractions in every- day use
			• understand that the decimal point is a mark that identifies the ones place, and indicates the change from whole numbers to parts of a whole
			 read decimal fractions correctly, ie 'six point nine'
			 understand that any numbers after the decimal point represent part of a whole
Tenths as decimals	1	Introducing decimal tenths	• recognise that the place value sys- tem can be extended to tenths
			• represent tenths using concrete materials and written representa- tions
			• recognise that tenths arise from di- viding an object into 10 equal parts
			• recognise that tenths arise from di- viding a one-digit number or quantity by 10
			• identify decimals on a number line
			• represent decimals using models and place value equipment such as base ten and arrow cards, place value grid, hundred square
	2	Counting in decimal tenths	• count forwards and backwards by tenths from any decimal number ex- pressed to 1 decimal place, using concrete materials and number lines, eg use base ten materials to repre- sent 3.7 and count forward: 3.8, 3.9, 4.0, 4.1,
	3	Reading and representing tenths on a place value grid	• read and represent tenths on a place value grid
Introducing decimal hundredths	1	1 Introducing decimal hundredths	• recognise that the place value sys- tem can be extended to tenths and hundredths
			• recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10
			• state the place value of digits in decimal numbers of up to 2 decimal places
			• read decimal fractions correctly, ie 'six point one nine' rather than 'six point nineteen'

Learning Journey	Steps	Content	Details			
	2	Counting in decimal hundredths	• count forwards and backwards by hundredths from any decimal num- ber expressed to 2 decimal places, using concrete materials and number lines			
		Compare and order decimals				
Compare and order dec- imal tenths	1	Comparing and ordering decimal tenths	 compare and order tenths using , < and = 			
Compare and order dec- imal hundredths	1	Comparing and ordering decimal hundredths	• compare numbers with the same number of decimal places up to 2 decimal places			
		Connecting decimals and fraction	าร			
Connecting decimal & fraction tenths	1	Connecting decimal fractions to common fractions involving tenths	 understand the relationship be- tween decimal fractions and com- mon fractions involving tenths recognise and apply decimal nota- 			
			tion to express whole numbers and tenths as decimals, eg 0.1 is the same as 1/10			
			• investigate equivalences using various methods, eg use a number line or a calculator to show that $\frac{1}{2}$ is the same as 0.5 and 5/10			
Connecting decimal & fraction hundredths	1	Connecting decimal fractions to common fractions involving hun- dredths	• understand the relationship be- tween decimal fractions and com- mon fractions involving hundredths			
			• recognise and apply decimal nota- tion to express whole numbers and hundredths as decimals, eg 0.15 is the same as 15/100			
Connecting decimal & fraction tenths & hun- dredths	1	Connecting decimal fractions to common fractions involving halves and quarters	• understand the relationship be- tween decimal fractions and com- mon fractions involving halves and quarters			
	2	Connecting decimal fractions to common fractions involving halves, fifths, tenths and hun- dredths	• understand the relationship be- tween decimal fractions and com- mon fractions involving halves, fifths, tenths and hundredths			
	3	Connecting decimal fractions to common fractions involving tenths and hundredths	• understand the relationship be- tween decimal fractions and com- mon fractions involving tenths and hundredths			
			• recognise and apply decimal no- tation to express whole numbers, tenths and hundredths as decimals, eg 0.1 is the same as 1/10			
			• investigate equivalences using various methods, eg use a number line or a calculator to show that $\frac{1}{2}$ is the same as 0.5 and 5/10			
	4	Connecting decimal fractions to common fractions	• understand the relationship be- tween decimal fractions and com- mon fractions			
Learning Journey	Steps	Content	Details			
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	Representing decimal fractions					
Model decimal fractions to 2 decimal places	1	1 Modelling and representing dec- imal fractions up to 2 decimal	• model decimal fractions using con- crete materials			
		places	• represent decimal fractions, eg as fractions (tenths and hundredths), on number lines, using hundreds grids, in place value models and charts			

6 Measures

Length			
		Converting length (metric)	
Learning Journey	Steps	Content	Details
Converting units of	1	Converting between centimetres	 describe 1 cm as 10 mm
length (whole numbers)		and millimetres (whole numbers only)	• convert between centimetres and millimetres using whole numbers
			• record measurement equivalents in a table
			• explain the relationship between the size of a unit and the number of units needed
Converting units of length (fractions of numbers)	1	Converting between centimetres and millimetres (mixed numerals and fractions)	• convert between centimetres and millimetres using mixed numerals and fractions
	L	ength word problems (metric/custo	mary)
Length word problems (metric and customary)	1	Solving word problems involv- ing lengths and distances (mixed metric and customary units)	• use the 4 operations to solve word problems involving distances including problems involving sim- ple fractions or decimals, and prob- lems that require expressing mea- surements given in a larger unit in terms of a smaller unit
		Length and scale	
Length measurements on diagrams using scale	1	Representing length measure- ments on diagrams using scale (mixed metric and customary units)	• represent measurement quantities using diagrams such as number line diagrams that feature a measure- ment scale
		Length and 3D objects	
Length and 3D objects	1	Applying length to attributes of three-dimensional objects	• recognise the features of a three- dimensional object associated with length that can be measured
			 describe the length, height and width of a three-dimensional object
		Solving problems in km (whole num	nber)
Solving problems involv- ing km up to 10 km	1	Solving problems involving kilo- metres, up to 10 km (whole num- bers only)	• solve problems using kilometres, eg, Tim and Peter walk 15 km together. Peter walks double the distance that Tim walks. How far does Peter walk?

Perimeter			
		Introducing perimeter	
Learning Journey	Steps	Content	Details
Introducing perimeter	1	Introducing perimeter	• use the term 'perimeter' to de- scribe the total distance around a two-dimensional shape
			• estimate and measure the perime- ters of two-dimensional shapes
			• describe when a perimeter mea- surement might be used in everyday situations

Learning Journey	Steps	Content	Details
		Perimeter and area	
Finding the perimeter and area of rectangles	1	Comparing areas and perimeters of rectangles	 construct different rectangles with the same area and compare their perimeters
			• construct different rectangles with the same perimeters and compare their areas
			• investigate the relationship be- tween the side lengths of a rectangle and its perimeter and area
			• investigate the relationship be- tween the side lengths of a square and its perimeter and area
Relating perimeter and area	1	Solving problems relating to perimeter and area of rectangles and squares	• pose and solve problems that re- quire the distinction between perime- ter and area
			• draw a number of rectangles of dif- fering areas with the same perimeter; compare with squares
			• determine that only one square is possible if given the area of a square; compare with rectangles
			• investigate what happens to the area of the shape if the length of one pair of opposite sides of the shape are doubled or halved

Area				
	Area			
Learning Journey	Steps	Content	Details	
Area of irregular shapes (square grid)	1	Estimating and comparing areas of non-rectilinear shapes using a square grid	 use a square grid to approxi- mate and compare the areas of non- rectilinear shapes 	
			• compare how different placements of the grid make approximation eas- ier or more difficult	
			 find and explain the area of irreg- ular shapes by counting squares or part squares 	
	2	Approximating and comparing areas of non-rectilinear shapes using a square centimetre grid	• use a square-centimetre grid to ap- proximate and compare the areas of non-rectilinear shapes	
			• compare how different placements of the grid make approximation eas- ier or more difficult	
			• find and explain the area of irreg- ular shapes by counting squares or part squares	
Additive formula for area of a rectangle	1	Developing an additive formula for area of a rectangle	• connect arrays with side lengths through repeated addition leading to multiplication	
Area of compound shapes (cm, m)	1	Calculating the area of compos- ite shapes using small measure- ments in cm and m	• calculate the area of a rectangu- lar composite shape by splitting the shape and calculating each area	

Volume and Capacity			
		Volume and capacity (metric unit	s)
Learning Journey	Steps	Content	Details
Reading liquid volume (mL)	1	Introducing formal units for vol- ume and capacity: millilitres	• recognise the need for a formal unit smaller than the litre to measure vol- ume and capacity
			• recognise that there are 1000 millil- itres in 1 litre, ie 1000 millilitres = 1 litre
			• relate the millilitre to familiar ev- eryday containers and familiar infor- mal units, eg 250 mL fruit juice con- tainers, 1 teaspoon is approximately 5 mL
	2	Reading scales with 100 millilitre markings	• read a scale where every 100 mL is marked and labelled
			• read a scale where every 100 mL is marked and half and I litre are la- belled
			• read a scale where every 100 mL is marked and every other 100 mL is labelled
	3	Measuring with millilitres to the nearest 100 mL	• use the millilitre as a unit to measure volume and capacity, using a device calibrated in millilitres (read to the nearest 100 mL with every 100 mL or every other 100 mL marked)
			• record volumes and capacities us- ing the abbreviation for millilitres (mL)
			• estimate the capacity of a container in millilitres and check by measuring (measure to the nearest 100 mL with every 100 mL or every other 100 mL marked)
			• compare and order the capacities of 2 or more containers measured in millilitres
Adding and subtracting (mL, L)	1	Adding and subtracting litres and millilitres	 add and subtract measurements in litres and millilitres eg 5 L and 300 mL + 3 L and 200 mL
Converting units of ca- pacity (mL, L)	1	Converting between units of vol- ume and capacity (whole num- bers only)	• convert between millilitres and litres using whole numbers and record measurement equivalents in a two-column table
	2	Converting between standard metric units of volume and ca- pacity with whole numbers and fractions	• understand the meaning of metric prefixes, eg milli-

Learning Journey	Steps	Content	Details
Solving volume word problems (mL, L)	1	Solving word problems involving volume and capacity	• use the four operations to solve word problems involving volume and capacity including problems involv- ing simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit
	V	olume and capacity (metric & custo	mary)
Solving volume word problems (metric & cus- tomary)	1	Solving word problems involving liquid volume	• use the 4 operations to solve one- step word problems involving liquid volume given in the same units
Using unit cubes to mea- sure volume	1	Using unit cubes to measure vol- ume	• measure volumes by counting unit cubes, using cubic centimetres, cu- bic inches, cubic feet and improvised units

Mass			
		Mass (metric units)	
Learning Journey	Steps	Content	Details
Investigating mass in packaging	1	Investigating mass in packaging	 interpret information about mass on commercial packaging
			• estimate the mass of a substance in a partially-filled container/packet from the information on the label
Measuring mass in whole numbers (g, kg)	1	Introducing formal units for mass: the gram	• establish the need for a smaller unit of mass and introduce the gram, in- cluding that 1000 grams = 1 kilogram
			• develop a sense of the mass of standard everyday objects in grams, eg an egg is about 50 grams
			• identify everyday situations where grams are an appropriate unit for measuring the mass
			 introduce the abbreviation 'g' for recording mass in grams and record masses
			 calculate the number of grams in a whole number of kilograms
			• interpret simple fractions $(\frac{1}{4}, \frac{1}{2}, \frac{3}{4})$ of a kilogram and relate these to the number of grams
	2	Measuring in grams	• estimate mass using personal ref- erences for grams and 'guess and check'
			• measure mass in grams by using and interpreting varied scales and images of scales
			 record mass in grams using the appropriate abbreviation (g)
	3	Measuring in grams and kilo- grams	• estimate mass using personal ref- erences for grams and kilograms
			• choose appropriate standard units to estimate and measure (g/kg)

Learning Journey	Steps	Content	Details
			• measure mass in grams and kilo- grams by using and interpreting var- ied scales
			• record mass in grams, kilograms and mixed units using the appropri- ate abbreviations (g), (kg), eg 5 kg and 500 g
Converting units of mass (g, kg)	1	Converting between grams and kilograms (whole numbers only)	• describe 1 gram as 1/1000 of a kilo- gram
			• apply place value understanding to modelling, describing and recording metric units of measurement
			• convert between grams and kilo- grams using whole numbers and record measurement equivalents in a two-column table
			• explain the relationship between the size of a unit and the number of units needed
			• convert between mass written in grams and mixed units (kg and g), eg 1250g = 1 kg 250g or 7kg 320g = 7320g
Compare and order mass (g, kg)	1	Comparing and ordering masses using standard metric units	• measure mass by using and inter- preting varied scales
			 compare and order masses us- ing grams and kilograms and justify comparisons
			• represent measurement quantities using diagrams such as number line diagrams that feature a measure- ment scale
			• compare masses using uniform in- formal units and the symbols >, =, <
Add and subtract mass	1	Solving addition and subtraction problems involving masses of the same unit	 solve addition and subtraction problems involving masses of the same unit
Mass word problems (metric)	1	Solving one-step word problems involving mass	• use the 4 operations to solve one- step word problems involving mass given in the same units
		Mass (customary units)	
Converting between	1	Converting between pounds and	• describe 1 lb as 16 oz
pounas and ounces		ounces (whole numbers only)	 convert between pounds and ounces using whole numbers
			• record measurement equivalents in a table
			• explain the relationship between the size of a unit and the number of units needed

Learning Journey	Steps	Content	Details		
	Mass (metric and customary units)				
Mass word problems (customary and metric)	1	Solving word problems involving mass (mixed metric and custom- ary units)	• use the 4 operations to solve word problems involving mass, in- cluding problems involving simple fractions or decimals and problems that require expressing measure- ments given in a larger unit in terms of a smaller unit		
	2	Solving 2-step word problems in- volving mass (mixed metric and customary)	• use the 4 operations to solve 2- step word problems involving mass, including problems involving sim- ple fractions or decimals and prob- lems that require expressing mea- surements given in a larger unit in terms of a smaller unit		

Time				
		Telling time		
Learning Journey	Steps	Content	Details	
Telling time to the minute (analog)	1	Telling time to the minute (ana- logue)	• read time on analogue clocks to the minute using the terms 'o'clock', 'past' and 'to', including 'half-past', 'quarter past' and 'quarter to'	
			• observe and describe the posi- tion or draw the hands of an ana- logue clock when reading time to the minute, including the hour hand, minute hand and second hand	
			• position or draw the hands on an analogue clock to show time to the minute where the time is given using the terms 'o'clock', 'past' and 'to', in- cluding 'half-past', 'quarter past' and 'quarter to'	
Telling time to the minute (digital)	1	Telling time to the minute (digital)	• read time on 12-hour digital clocks to the minute using the terms 'o'clock', 'past' and 'to', including 'half-past', 'quarter past' and 'quar- ter to' and write in words	
			• record times on analogue clocks to the minute in 12-hour digital format	
			• position or draw the hands on an analogue clock to show time to the minute where the time is given in 12- hour digital format	
			• connect 12-hour digital displays for times, to the minute, to their cor- responding display on an analogue clock	
Telling time to the minute (Roman numeral)	1	Telling time to the minute (Roman numeral clocks)	• read time on analogue clocks with Roman numerals to the minute using the terms 'o'clock', 'past' and 'to', in- cluding 'half-past', 'quarter past' and 'quarter to'	

Learning Journey	Steps	Content	Details
			• record times on analogue clocks with Roman numerals to the minute in 12-hour digital format
			• observe and describe the position or draw the hands of an analogue clock with Roman numerals when reading time to the minute, including the hour hand, minute hand and sec- ond hand
			• position or draw the hands on an analogue clock with Roman nu- merals to show time to the minute where the time is given using the terms 'o'clock', 'past' and 'to', in- cluding 'half-past', 'quarter past' and 'quarter to'
			• position or draw the hands on an analogue clock with Roman numer- als to show time to the minute where the time is given in 12-hour digital format
			• connect 12-hour digital displays for times, to the minute, to their cor- responding display on an analogue clock with Roman numerals
		Using a.m. and p.m. notation	
Using a.m. and p.m. no- tation	1	Using am and pm notation	 know that there are 24 hours in a day
			• recognise that midday/noon divides the day into two equal parts of 12 hours each
			• establish the need to distinguish between times in the first 12 hours of the day and the second 12 hours of the day, and introduce am and pm notation
			• know and record midday/noon as 12pm and 12:00pm, and midnight as 12am and 12:00am
			 use am and pm notation to record times in relation to midday/noon and midnight
			• read times written using am and pm notation using 'past', 'to', morn- ing, afternoon, evening and night ap- propriately', eg 3:40 pm is 'twenty to four in the afternoon'
		24-hour clock	
24-hour clock	1	hour notation	• convert between 24-hour time no- tation and 12-hour time notation
		Converting time	
Converting time	1	Converting between units of time (multiplicative conversions only)	• calculate the number of seconds in a whole number of minutes
			• calculate the number of minutes in a whole number of hours

Learning Journey	Steps	Content	Details
			• calculate the number of days in a whole number of weeks
			• calculate the number of months in a whole number of years
			• solve problems involving conver- sion between units of time
		Calculating elapsed time	
Calculating elapsed time	1	Calculating elapsed time within one unit of measurement	• estimate and determine elapsed time in hours only
			• estimate and determine elapsed time in minutes only, without cross-ing an hour
			• estimate and determine elapsed time in minutes only, including cross-ing an hour
		Telling time and using timetable	S
Using timetables	1	Using timetables (12-hour time)	• use real-world timetables (12-hour time only) to determine arrival time given the desired departure time, in- cluding when the exact departure time is not listed exactly in the timetable, ie needing to use an ear- lier departure time
			• use real-world timetables (12-hour time only) to determine departure time given the desired arrival time, in- cluding when the arrival time is not listed exactly in the timetable
			• create timetables using given infor- mation
	2	Solving problems relating to elapsed time involving the four operations (to five minutes)	• use the 4 operations to solve word problems involving intervals of time including problems involving sim- ple fractions or decimals, and prob- lems that require expressing mea- surements given in a larger unit in terms of a smaller unit
		Timelines	
Introducing timelines	1	Introducing timelines	• interpret the sequence of events on a timeline (understanding of scale not expected)

Temperature			
		Measuring temperature (Celsius)
Learning Journey	Steps	Content	Details
Temperature: Celsius	1	Measuring temperature	• recognise the need for formal units to measure temperature
			• use a thermometer to measure and compare temperatures to the nearest degree Celsius
			• record temperatures to the nearest degree Celsius using the symbol for degrees (°)

Learning Journey	Steps	Content	Details
			• use a digital or analogue ther- mometer to take and record daily temperature readings

7 Geometry

Patterns in shape			
		Patterns with shape	
Learning Journey	Steps	Content	Details
Generate shape pat- terns from a given rule	1	Generating shape patterns from a given rule	• extend and create a shape pattern given the core of the sequence
			• identify apparent features of that pattern that were not explicit in the rule

2D shape			
		2D shape	
Learning Journey	Steps	Content	Details
Identifying features of 2D shapes	1	Identifying spatial features in two-dimensional shapes	• identify points, line segments, rays, angles (right, acute, obtuse) and per- pendicular and parallel lines
Classifying shapes	1	Classifying plane shapes by their spatial features	• classify plane shapes by the na- ture and number of sides, angles and symmetry; including paral- lel/perpendicular sides, right, obtuse, acute angles
Sorting plane shapes	1	Sorting plane shapes by their spatial features	 sort a group of plane shapes by their spatial features
			• identify how a group of plane shapes has been sorted/classified
Spheres	1	Identifying spheres in the environ- ment	• identify spheres in the environment and from drawings, photographs and descriptions
			• investigate types of spheres used in commercial packaging and give rea- sons for some being more commonly used
Pyramids	1	Identifying pyramids in the envi- ronment	• identify pyramids in the envi- ronment and from drawings, pho- tographs and descriptions
			• investigate types of pyramids used in commercial packaging and give reasons for some being more com- monly used
		Symmetry	
Drawing lines of sym- metry	1	Drawing lines of symmetry on given designs and shapes	 recognise that some designs and shapes may have more than 1 line of symmetry
			• identify and draw all lines of sym- metry on designs and shapes
			• determine the total number of lines of symmetry on designs and shapes
			• determine whether or not a given line through designs and shapes is a line of symmetry

Learning Journey	Steps	Content	Details
	2	Completing symmetrical designs	• complete symmetrical designs and shapes given their line of symmetry and one half of the design or shape

Angles				
Exploring angles				
Learning Journey	Steps	Content	Details	
Classifying angles	1	Classifying angles in relation to a right angle	• classify angles as 'less than a right angle', 'about the same as a right an- gle', 'greater than a right angle'	
	2	Classifying angles as acute, right or obtuse	 identify and name angles as acute, right or obtuse 	
			 categorise angles as acute, right or obtuse 	
			• draw and create angles of a given size: acute, right, obtuse (no protractors)	
Calculating angles around a point	1	Classifying angles as acute, right, obtuse, straight, reflex or a revo- lution	• understand and describe angles greater than or equal to 180°	
			• identify and name angles as acute, right, obtuse, straight, reflex and rev- olution	
			• categorise angles as acute, right, obtuse, straight, reflex and revolution	
			• draw and create angles of a given size: acute, right, obtuse, straight, re- flex and revolution (no protractors)	
Compare and order an- gles	1	Comparing and ordering angles in a shape using statements and in- equality symbols	• compare and order angles using statements and inequality symbols, eg Angle A is [<, > or =] Angle B	
		Exploring points and lines		
Labelling points and lines	1	Labelling points and lines	 define, name, label and draw points, lines and line segments 	
			 define, name, label and draw lines using capital letters 	

Position, movement and direction			
		Compass directions and maps	
Learning Journey	Steps	Content	Details
Legends on a map	1	Using legends on maps	• establish the need for legends on maps with and without grid referenc-ing
			• use the legend of a map to deter- mine the feature located at a given grid reference
			• use the legend of a map to deter- mine the grid reference for a given feature
Compass directions	1	Introducing cardinal compass di- rections	• understand, locate and label the 4 cardinal compass directions on a compass rose: north (N), south (S), east (E) and west (W)

Learning Journey	Steps	Content	Details
			• connect the 4 cardinal compass di- rections to features of the local area from their particular location
			• determine the direction of other car- dinal compass directions when given one of the cardinal compass direc- tions
Describing locations and drawing routes	1	Describing locations on maps us- ing cardinal compass directions	• recognise that north (N) is typically represented by an arrow on a map
			• use the 4 cardinal compass direc- tions to describe the location of one feature in relation to another on a map that has an arrow representing north
		Drawing routes on maps using cardinal compass directions	• draw a route on a map given a se- quence of directions involving cardi- nal directions and landmarks
			• use cardinal directions and land- marks to describe a route between 2 locations on a map

8 Operations & Algebraic Thinking

Algebra				
	Substitution			
Learning Journey	Steps	Content	Details	
Substitution 1	1	1 Substituting and finding unknown values represented by letters (values within 10)	• give general algebraic descriptions of the relationship between terms and its position in a sequence and justify the solution	
			• generalise a pattern arising from a problem-solving context, using a lin- ear equation, and verify by substitu- tion	
		Formulae		
Formula/formulas	1	Solving problems by substituting into formulas	• solve problems by substituting into formulas, eg, the rule for making a cake is 'use 3 times as much flour (f) as butter (b). Which is the correct for- mula?'	

9 Statistics and data

Data			
		Introducing data presentation	
Learning Journey	Steps	Content	Details
Pictograms/picture graphs	1	Collecting, recording and inter- preting data in tables and picture	• choose effective ways to collect and record data in a table
		graphs	 read and interpret data in tables
			• choose effective ways to collect and record data using a picture graph
			• read and interpret data in picture graphs
Picture graphs with many-to-one corre-	1	Introducing picture graphs with many-to-one correspondence	 interpret the key on a picture graph with many-to-one correspondence
spondence			• read and interpret data in a picture graph with many-to-one correspondence
			• recognise and remedy errors or un- suitable scales in a picture graph
	2	Representing data in picture graphs using many-to-one corre-	• represent given or collected cate- gorical data in picture graphs
		spondence	• discuss and determine a suit- able scale of many-to-one corre- spondence to draw graphs for large data sets and state the key used
			• use grid paper to assist in draw- ing graphs that represent data using a scale of many-to-one correspon- dence
			• mark equal spaces on axes, name and label axes, and choose appropri- ate titles for graphs
			• interpret data in a picture graph; ask and answer questions related to the data in the display; draw conclu- sions
Line graphs	1	Introducing and reading line graphs	• become familiar with the structure of a line graph
			• read and interpret a basic line graph displaying time series data
	2	Representing and reading data in a given line graph	• complete a line graph using a given data set
			• answer and ask questions relating to data in a line graph including sum, comparison and difference questions
Column graphs/bar graphs	1	Introducing column graphs with many-to-one correspondence	• determine the scale on a column graph
			• read and interpret data in a column graph with many-to-one correspondence
			• recognise and remedy errors or un- suitable scales in a column graph

Learning Journey	Steps	Content	Details
	2	Representing data in column graphs using many-to-one corre- spondence	• represent given or collected cate- gorical data in column graphs
			• discuss and determine a suit- able scale of many-to-one corre- spondence to draw graphs for large data sets and state the key used
			• use grid paper to assist in draw- ing graphs that represent data using a scale of many-to-one correspon- dence
			• use data in a spreadsheet to create column graphs with appropriately labelled axes
			• mark equal spaces on axes, name and label axes, and choose appropri- ate titles for graphs
			• interpret data in column graph; ask and answer questions related to the data in the display; draw conclusions
Pie chart/sector graph/circle graph	1	Introducing pie charts (no per- centages)	• become familiar with the structure of a pie chart; identify the key fea- tures of pie charts
			• read and interpret a pie chart us- ing whole numbers and a simple key; make simple comparisons between categories, eg' There are 2 times as many children who play tennis than soccer' or 'Horror movies are the most popular category'
			 compare pie charts to other dis- plays
	2	Representing data in a simple pie chart (no percentages)	• complete a given pie chart using given or collected data with a se- lected number of responses
			• interpret data in a pie chart; ask and answer questions related to the data in the display; draw conclusions
Solving problems using charts	1	Solving problems using column graphs, picture graphs, tables	 solve comparison, addition and subtraction problems using a range of data displays
		Collecting and sorting data	
Collecting and sorting data	1	Collecting and sorting data	 read data displayed in a picture graph
		Fractions on a line plot	
Fractions on a line plot	1	Representing and interpreting fraction measurements on a line plot	• make a line plot to display a data set of measurements in fractions of a unit $(\frac{1}{2}, \frac{1}{4}, \frac{1}{8})$
			 solve problems involving addition and subtraction of fractions by using information presented in line plots

Probability and chance					
	Identifying and exploring chance events				
Learning Journey	Steps	Content	Details		
Chance events	1	Describing the chances of every- day events occurring	 use the terms 'equally likely', 'likely' and 'unlikely' to describe the chance of everyday events occurring 		
			• compare the chance of familiar events occurring and describe the events as being 'more likely' or 'less likely' to occur than each other		
			• order events from least likely to most likely to occur		
	2	Describing the chances of events occurring in simple chance exper- iments	• compare the likelihood of obtain- ing particular outcomes in a simple chance experiment		
	3	Exploring everyday events that cannot occur simultaneously	• identify and discuss everyday events that cannot occur at the same time		
	4	Identifying events where the chances of occurring are inde- pendent of other events	• identify and discuss events where the chance of 1 event occurring will not be affected by the occurrence of the other		
			• explain why subsequent events are independent		
			 compare independent events with dependent events 		

Part III Grade 5

10 Number

Number and place value					
		Numbers up to 6 digits			
Learning Journey	Steps	Content	Details		
Reading and writing numbers to 10 million	1	Reading and writing 6-digit num- bers	• apply an understanding of place value to read numbers of up to 6 dig- its		
			• apply an understanding of place value to write numbers of up to 6 dig- its		
	2	Reading and writing numbers to 10 million	• apply an understanding of place value to read numbers to 10 million		
			• apply an understanding of place value to write numbers to 10 million		
	3	Reading and writing numbers of any size	• apply an understanding of place value to read numbers of any size		
			• apply an understanding of place value to write numbers of any size		
Place value of 6 digit numbers	1	Identifying the place value of 6- digit numbers	• state the place value of digits in numbers of up to 6 digits		
			• pose and answer questions that extend place value understanding of numbers, eg 'What happens if I re- arrange the digits in the number 128 345?', 'How can I rearrange the digits to make the largest number?'		
			• represent and describe whole num- bers to 1 000 000		
	2	Naming the place value for a digit in a number	• name the place value for an under- lined digit in a number		
			 identify the value of an underlined digit in a number 		
Place value of numbers of any size	1	Identifying the place value of numbers of any size	• state the place value of digits in numbers of any size		
			• pose and answer questions that extend place value understanding of numbers, eg 'What happens if I rear- range the digits in the number 2 312 345?', 'How can I rearrange the digits to make the largest number?'		
			• recognise different abbreviations of numbers used in everyday contexts, eg \$35 M represents \$35 000 000		
			 understand the role of zero as a placeholder 		
			• use place value understanding to count by 10 000 and 100 000		

Learning Journey	Steps	Content	Details
	2	Identifying the place value of dig- its in numbers up to 10 million	• state the place value of digits in numbers of up to 10 million
			• pose and answer questions that extend place value understanding of numbers, eg 'What happens if I rear- range the digits in the number 12 345 678?', 'How can I rearrange the digits to make the largest number?'
			• represent and describe whole num- bers to 10 000 000 pictorially and symbolically
Place value and powers of 10	1	Understanding how place values change by powers of 10 when moving left or right in a number	• understand how place values change by powers of 10 when mov- ing left or right in a number
	2	Understanding the role of place value when increasing or de- creasing a digit in a number	• find numbers 1, 10, 100, 1000, 10 000, 100 000 before or after a given number by applying place value knowledge
			 count in steps of powers of 10
	3	Writing the value of a number in a specific place value with powers of 10	• write the value of a number in a specific place value with powers of 10
Comparing numbers of any size	1	Comparing two 6-digit numbers	 compare two 6-digit numbers using words and symbols <, =, >
	2	Comparing 7-digit numbers	 compare 7-digit numbers using words and symbols <, =, >
			• arrange 7-digit numbers in ascend- ing and descending order
	3	Comparing 2 numbers of any size	• compare 2 numbers of any size us- ing words and symbols <, =, >
Ordering numbers of any size	1	Ordering 6-digit numbers	• arrange numbers up to 6 digits in ascending and descending order
	2	Ordering numbers of any size	• arrange numbers of any size in as- cending and descending order
Partitioning numbers of any size	1	Using place value to partition 6- digit numbers	• use place value to partition num- bers of up to 6 digits, eg 672 012 is 600 000 + 70 000 + 2000 + 10 + 2
	2	Using place value to partition numbers of any size	 use place value understanding and models to partition numbers of any size
	3	Using place value to partition 7- digit numbers	• use place value to partition num- bers of up to 7 digits, eg, 4 673 012 is 4 000 000 + 600 000 + 70 000 + 3000 + 10 + 2
Non-standard partition- ing 6- and 7-digit num- bers	1	Using non-standard partitioning with 6-digit numbers	• partition numbers of up to 6 digits in non-standard forms, eg 670 000 as 500 000 + 170 000
	2	Using non-standard partitioning with numbers of any size	• partition numbers of any size in non-standard forms

Learning Journey	Steps	Content	Details
	3	Using non-standard partitioning with 7-digit numbers	• partition numbers of up to 7 digits in non-standard forms, eg, 5 617 000 as 5 500 000 + 117 000
Rounding numbers of any size	1	Rounding 6-digit numbers	 round 6-digit numbers to any place value
	2	Rounding numbers to a specified place value	• round numbers to a specified place value, eg round 5 461 883 to the nearest million
	3	Rounding numbers to the nearest 10 000, 100 000 or 1 000 000	• round to the nearest 10, 000, 100 000 or 1 000 000 with and with- out models (place value grids, num- ber lines)
Round to estimate	1	Rounding 4 and 5-digit numbers to the nearest 10, 100 or 1000 to estimate sums	• round 4- and 5-digit numbers to the nearest 10, 100 or 1000 to estimate sums
	2	Rounding 4 and 5-digit numbers to the nearest 10, 100 or 1000 to estimate differences	• round 4 and 5-digit numbers to the nearest 10, 100 or 1000 to estimate differences using models eg, number lines
	3	Rounding to estimate products	 estimate products by rounding
Using numbers in con- text	1	Investigating integers in context	 interpret integers in everyday con- texts, eg temperature
			• count forwards and backwards with positive and negative whole numbers, including through 0 (in con- text)
Using numbers of any size	1	Using numbers of any size	• use numbers of any size in real-life situations, including in money prob- lems
			• interpret information from the inter- net, the media, the environment and other sources that use large numbers
		Square and triangular numbers	
Square numbers	1	Describing square numbers	• model square numbers and record each number group in numerical and diagrammatic form
			• explain how square numbers are created
			• explore square numbers using ar- rays, grid paper or digital technolo- gies
			• recognise and explain the rela- tionship between the name 'square' number and the way the pattern of numbers is created
Triangular numbers	1	Describing triangular numbers	• model triangular numbers and record each number group in numer- ical and diagrammatic form
			• explore triangular numbers using arrays, grid paper or digital technolo- gies

Learning J	ourney		Steps	Content	Details
					• recognise and explain the relation- ship between the name 'triangular' number and the way the pattern of numbers is created
					 model triangular numbers using matchsticks
					• explain how triangular numbers are created
				Roman numerals to 1000	
Roman 1000	numerals	to	1	Reading and writing Roman nu- merals to 1000 (M)	• read and write Roman numerals to 1000 (M)
					 recognise years written in Roman numerals

Addition and subtraction					
	Ctopo	Formal method for addition	Deteile		
Adding numbers	Steps		Details		
size (no regrouping)	1	for addition calculations involving numbers of any size (no regroup- ing)	• apply algorithms to solve problems without regrouping, with the same number of places and with a different number of places; include opportuni- ties for students to write their own al- gorithms with digits in correct place value positions; include word prob- lems		
			• use estimation or reverse operation to check the reasonableness of solutions		
Adding numbers of any size (with regrouping)	1	Using a formal written algorithm for addition calculations involv- ing numbers of any size (with re- grouping)	• apply algorithms to solve problems with regrouping in 1 or more places, with the same number of places and with a different number of places; include opportunities for students to write their own algorithms with dig- its in correct place value positions; in- clude word problems		
			• use estimation or reverse operation to check the reasonableness of solu- tions		
Adding numbers of any size	1	Using a formal written algorithm for addition calculations of 3 or more addends up to any size (with and without regrouping)	• apply algorithms with 3 or more addends with the same number of places and with a different number of places; include opportunities for stu- dents to write their own algorithms with digits in correct place value po- sitions; include word problems		

Learning Journey	Steps	Content	Details
		Formal method for subtraction	
Subtracting numbers of any size (no exchange)	1	Using a formal written algorithm to record subtraction calculations involving numbers of any size (without decomposing)	• apply algorithms to solve prob- lems without trading (decomposing), with the same number of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first number (minuend); in- clude opportunities for students to write their own algorithms with digits in correct place value positions and with the larger number first; include word problems
			• use estimation or reverse operation to check the reasonableness of solutions
Subtracting numbers of any size (with exchange)	1	Using a formal written algorithm to record subtraction calculations involving numbers of any size (with decomposing)	 apply algorithms to solve problems with trading (decomposing) in 1 or more places, with the same num- ber of places for both numbers, with fewer places in the second number (subtrahend) and with and without 1 or more zeros in the first num- ber (minuend); include opportunities for students to write their own al- gorithms with digits in correct place value positions and with the larger number first; include word problems use estimation or reverse operation to check the reasonableness of solu- tione
			tions
		Addition and subtraction strategi	es
Using a bar model to add and subtract	1	Representing addition or subtrac- tion problems using a bar model	• use a bar model as a tool to repre- sent an addition or subtraction prob- lem
			 select an appropriate mental or written strategy to solve the problem
Using equal adjust- ments to subtract	1	Using equal adjustments to sub- tract up to 3-digit numbers	• model and solve subtraction prob- lems using equal adjustments
Efficient strategies to		Applying officient strategies for	record and explain the use of the strategy
Efficient strategies to add and subtract	1	addition and subtraction calcu- lations involving numbers of any	• add 3 or more numbers with differ- ent numbers of digits
		size	• use mental and/or written strate- gies efficiently
			 use mathematical language to describe addition and subtraction strategies
			• apply efficient strategies to solve word problems involving addition and subtraction
			• represent calculations using appro- priate recording strategies
			• justify the choice of strategy for a given calculation

Learning Journey	Steps	Content	Details
		Checking accuracy of calculatior	IS
Checking accuracy of calculations	1	Checking accuracy of addition and subtraction calculations	 check solutions to problems by us- ing the inverse operation
			 round numbers appropriately when obtaining estimates to numerical cal- culations
			• use estimation to check the reason- ableness of answers to addition and subtraction calculations
	2	Checking accuracy of addition and subtraction calculations with	 check solutions to problems by us- ing the inverse operation
		4-digit and 5-digit numbers	 round numbers appropriately when obtaining estimates to numerical cal- culations
			• use estimation to check the reason- ableness of answers to addition and subtraction calculations
		Roman numerals	
Adding and subtracting with Roman numerals	1	Adding and subtracting 1s and 10s using Roman numerals to 1000 (M)	• add and subtract 1s and 10s using Roman numerals to 1000 (M)
	2	Solving addition and subtraction problems using Roman numerals	• solve addition problems involving Roman numerals eg 10 more, 1 more
			• solve subtraction problems involv- ing Roman numerals eg 10 less, 1 less
		Solving two-step problems	
Addition and subtraction	1	Solving addition and subtraction	 read and interpret a word problem
with 2-step problems		two-step problems in context (max sum 10 000)	• decide with operations and strate- gies to use and explain why
			 solve an addition and subtraction two-step problem

Multiplication and division					
Multiplying - expanded algorithm					
Learning Journey	Steps	Content	Details		
Multiply 2 digits by 1 digit - expanded algo-	1	Multiplying 2-digit numbers by 1- digit numbers using the expanded algorithm	 multiply the ones, then the tens, with and without regrouping 		
rithm			• model the method with place value models or diagrams; relate to the area model		
			• check answers to mental calcula- tions using inverse solutions or digital technologies		
Multiply 3 digits by 1 digit - expanded algo- rithm	1	Multiplying 3-digit numbers by 1- digit numbers using the expanded algorithm	• multiply the ones, then the tens, then the hundreds, with and without regrouping		
			• model the method with place value models or diagrams; relate to the area model		
			• check answers to mental calcula- tions using inverse solutions or digital technologies		

Learning Journey	Steps	Content	Details
Multiply 4 digits by 1 digit - expanded algo- rithm	1	Multiplying 4-digit numbers by 1- digit numbers using the expanded algorithm	• multiply the ones, then the tens, then the hundreds and then the thou- sands, with and without regrouping
			• model the method with place value models or diagrams; relate to the area model
			• check answers to mental calcula- tions using inverse solutions or digital technologies
Multiply 2-digits by 2- digits - extended algo- rithm	1	Multiplying 2-digit numbers by 2- digit numbers using the extended form of the formal algorithm	• multiply 2-digit by 2-digit numbers using extended form, with and with- out regrouping
			• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions
Multiply 3-digits by 2- digits - extended algo- rithm	1	Multiplying 3-digit numbers by 2- digit numbers using the extended form of the formal algorithm	• multiply 3-digit by 2-digit numbers using extended form, with and with- out regrouping
			• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions
4 digits by 2 digits - ex- panded algorithm	1	Multiplying 4-digit numbers by 2- digit numbers using the expanded algorithm	• multiply the ones, then the tens, then the hundreds and then the thou- sands, with and without regrouping
			• model the method with place value models or diagrams; relate to the area model
			• check answers to mental calcula- tions using inverse solutions or digital technologies
Multi-digit numbers - ex- panded algorithm	1	Multiply multi-digit whole num- bers using the standard algorithm	• apply the written algorithm to mul- tiply multi-digit whole numbers
		Multiplying - split method	
Multiplying 3 digits by 1 digit - split method	1	Multiplying 3-digit numbers by 1- digit numbers using split method	• multiply the hundreds, then the tens and then the ones
			• check answers to mental calcula- tions using digital technologies
			 use inverse operations to justify so- lutions
Multiplying 4 digits by 1 digit - split method	1	Multiplying 4-digit numbers by 1- digit numbers using split method	• multiply the thousands, then the hundreds, then the tens and then the ones
			• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions
		Multiplying - area model	
Multiplying 3 digits by 1 digit - area model	1	Multiplying 3-digit numbers by 1-digit numbers using an area	• use an area model for 3-digit by 1- digit multiplication
		model	• check answers to mental calcula- tions using digital technologies

Learning Journey	Steps	Content	Details
			 use inverse operations to justify so- lutions
Multiplying 4 digits by 1 digit - area model	1	Multiplying 4-digit numbers by 1-digit numbers using an area	• use an area model for 4-digit by 1- digit multiplication
		model	• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions
Multiplying 2 digits by 2 digits - area model	1	Multiplying 2-digit numbers by 2-digit numbers using an area	• use an area model for 2-digit by 2- digit multiplication
		model	• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions
		Multiplying - contracted model	
Multiplying 2 digits by 1 digit - contracted model	1	Multiplying 2-digit numbers by 1-digit numbers using the con-	• multiply the ones, then the tens, with and without regrouping
		tracted algorithm	• use inverse operations or digital technologies to check solutions
Multiplying 3 digits by 1 digit - contracted model	1	Multiplying 3-digit numbers by 1-digit numbers using the con- tracted algorithm	• multiply the ones, then the tens, then the hundreds, with and without regrouping
			• use inverse operations or digital technologies to check solutions
Multiplying 4 digits by 1 digit - contracted model	1	Multiplying 4-digit numbers by 1-digit numbers using the con- tracted algorithm	• multiply the ones, then the tens, then the hundreds and then the thou- sands, with and without regrouping
			• use inverse operations or digital technologies to check solutions
	2	Multiplying 4-digit numbers by 2-digit numbers using the con- tracted algorithm	• multiply the ones, then the tens, then the hundreds and then the thou- sands, with and without regrouping
			• use inverse operations or digital technologies to check solutions
		Multiplying - rounding & compensa	ting
Rounding, compensat- ing and partitioning	1	Multiplying 1-digit and 2-digit numbers using rounding and compensating	• use known facts to solve multiplica- tion problems by adding on or taking off, eg 5 x 100 is 500, so 5 x 99 is 5 less, which is 495
			• explain and justify the use of the strategy
		Multiplying using factors	
Multiplying using factors	1	Multiplying by factorising (using the distributive law)	• split factors, eg 50 x 8 is the same as 50 x 2 x 4, which becomes 100 x 4
			• explain and justify the use of the strategy
	2	Factorising to multiply a 2-digit number by a 2-digit number	• factorise to multiply a 2-digit number by a 2-digit number, eg 12 × 25 = 3 × 4 × 25 = 3 × 100 = 300

Learning Journey	Steps	Content	Details
		Multiply by doubles, halves and th	irds
Doubling	1	Multiplying using doubling	• use the relationship between mul- tiplication facts, eg the multiplication facts for 6 are double the multiplica- tion facts for 3
			• explain and justify the use of the strategy
	2	Multiplying by 2, 4 or 8 using repeated doubling	• use doubling as a strategy to multi- ply 2, eg 70 x 2 is double 70
			• use double-double as a strategy to multiply by 4, eg 70 x 4 is double- double 70 which is 280
			• use doubling as a strategy to multi- ply by 8, eg 70 x 8 is double-double- double 70 which is 560
Doubling and halving	1	Using doubling and halving to solve multiplication problems with 2-digit and 1-digit numbers	• mentally adjust a multiplication problem by doubling one factor and halving the other, eg 24 x 6 as 12 x 12
			• explain and justify the use of the strategy
	2	Using doubling and halving to solve multiplication problems with a 2-digit number and a 1 or 2-digit number	• mentally adjust a multiplication problem by doubling one factor and halving the other, eg 24 x 50 as 12 x 100
			• explain and justify the use of the strategy
Doubling and halving or thirding and trebling	1	Using doubling and halving or thirding and trebling to solve mul- tiplication problems	• mentally adjust a multiplication problem using doubling and halving or thirding and trebling where appro- priate, eg 18 x 3 as 6 x 9 or 24 x 6 as 12 x 12
			• explain and justify the use of the strategy
		Factors and multiples	
Factor pairs	1	Finding factors for whole num- bers up to 100	• determine all 'factors' of a given whole number up to 100
			• determine the 'highest common factor' (HCF) of 2 whole numbers
			• determine whether a particular number is a factor of a given number using digital technologies
			• recognise that when a given num- ber is divided by 1 of its factors, the result must be a whole number
Common factors	1	Finding common factors for two numbers	• find common factors for two num- bers
	2	Finding factors for whole num- bers up to 144	• determine all 'factors' of a given whole number up to 144
			• determine the 'highest common factor' (HCF) of 2 whole numbers

Learning Journey	Steps	Content	Details
			• determine whether a particular number is a factor of a given number using digital technologies
			• recognise that when a given num- ber is divided by 1 of its factors, the result must be a whole number
	3	Finding the highest common fac- tor using a list	 find the highest common factor us- ing a list
Multiples	1	Finding multiples up to 100	 determine 'multiples' of a given whole number
			• determine the 'lowest common mul- tiple' (LCM) of 2 whole numbers
	2	Finding multiples up to 144	 determine 'multiples' of a given whole number
			• determine the 'lowest common mul- tiple' (LCM) of 2 whole numbers
	3	Finding the lowest common multi- ple of 2 whole numbers less than or equal to 12	• find the lowest common multiple of 2 whole numbers less than or equal to 12
Solving word problems: factors and multiples	1	Solving problems using factors and multiples	• solve problems using knowledge of factors and multiples, eg 'There are 48 people at a party. In how many ways can you set up the tables and chairs, so that each table seats the same number of people and there are no empty chairs?'
		Multiplying with multiples	
Multiplication using mul- tiples of 10 and 100	1	Representing and using known facts to multiply two 2-digit mul- tiples of 10	• represent with models/diagrams and use known facts and place value understanding to multiply two 2-digit multiples of 10, eg using the known fact of 30 x 4 to solve 30 x 40 as (30 x 4) x 10
			• know that multiplying by 10 shifts the digits 1 place to the left
	2	Representing and using known facts to multiply 2 multiples of 10 or 100	• represent with models/diagrams and use known facts and place value understanding to multiply 2 multiples of 10 or 100, eg using the known fact of 30 x 4 to solve 30 x 400 as (30 x 4) x 100
			• know that multiplying by 10 shifts the digits 1 place to the left and mul- tiplying by 100 shifts the digits 2 places to the left
Multiplication using mul- tiples of 1000	1	Using known facts to multiply 1- digit numbers with multiples of 1000	• use known facts and place value understanding to solve multiplication problems with multiples of 1000, eg $3 \times 6 = 18 \text{ so } 3 \times 6000 = 18 000$
			• explain and justify the use of the strategy

Learning Journey	Steps	Content	Details
	2	Using known facts to multiply 1- digit numbers with multiples of 10 000	• use known facts and place value understanding to solve multiplication problems with multiples of 1000, eg $3 \times 6 = 18 \text{ so } 3 \times 60 000 = 180 000$
			 explain and justify the use of the strategy
		Multiplication word problems	
Solving multiplication word problems	1	Solving multiplication word prob- lems	 apply appropriate mental strate- gies to solve multiplication word problems
			 apply appropriate written strate- gies to solve multiplication word problems
			 apply appropriate digital technolo- gies to solve multiplication word problems
			• use the appropriate operation when solving problems in real-life situa-tions
			• use inverse operations to justify so- lutions
			• record the strategy used to solve multiplication word problems
			• use selected words to describe each step of the solution process
		Dividing - contracted algorithm	
2 digits by 1 digit - con- tracted algorithm	1	digit divisor using the contracted algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 2-digit number by a 1-digit number, without remainders and without zeros in the answer
	2	Dividing a 2-digit number by a 1- digit divisor using the contracted algorithm, with remainders but without zeros in answers	• apply the written algorithm to di- vide a 2-digit number by a 1-digit number, with remainders but without zeros in the answer
	3	Dividing a 2-digit number by a 1- digit divisor using the contracted algorithm, with and without re- mainders and zeros in answers	• apply the written algorithm to di- vide a 2-digit number by a 1-digit number, with and without remain- ders and zeros in the answer
3 digits by 1 digit - con- tracted algorithm	1	Dividing a 3-digit number by a 1- digit divisor using the contracted algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 1-digit number, without remainders and without zeros in the answer
	2	Dividing a 3-digit number by a 1- digit divisor using the contracted algorithm, with and without re- mainders and zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 1-digit number, with and without remain- ders and zeros in the answer
	3	Dividing a 3-digit number by a 1- digit divisor using the contracted algorithm, with remainders but without zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 1-digit number, with remainders but without zeros in the answer
4 digits by 1 digit - con- tracted algorithm	1	Dividing a 4-digit number by a 1- digit divisor using the contracted algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 1-digit number, without remainders and without zeros in the answer

Learning Journey	Steps	Content	Details
	2	Dividing a 4-digit number by a 1- digit divisor using the contracted algorithm, with remainders but without zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 1-digit number, with remainders but without zeros in the answer
	3	Dividing a 4-digit number by a 1- digit divisor using the contracted algorithm, with and without re- mainders and zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 1-digit number, with and without remain- ders and zeros in the answer
		Dividing - extended algorithm	
2 digits by 1 digit - ex- tended algorithm	1	Dividing a 2-digit number by a 1- digit divisor using the extended algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 2-digit number by a 1-digit number, without remainders and without zeros in the answer
	2	Dividing a 2-digit number by a 1- digit divisor using the extended algorithm, with remainders but without zeros in answers	• apply the written algorithm to di- vide a 2-digit number by a 1-digit number, with remainders but without zeros in the answer
	3	Dividing a 2-digit number by a 1- digit divisor using the extended algorithm, with and without re- mainders and zeros in answers	• apply the written algorithm to di- vide a 2-digit number by a 1-digit number, with and without remain- ders and zeros in the answer
3 digits by 1 digit - ex- tended algorithm	1	Dividing a 3-digit number by a 1- digit divisor using the extended algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 1-digit number, without remainders and without zeros in the answer
	2	Dividing a 3-digit number by a 1- digit divisor using the extended algorithm, with remainders but without zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 1-digit number, with remainders but without zeros in the answer
	3	Dividing a 3-digit number by a 1- digit divisor using the extended algorithm, with and without re- mainders and zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 1-digit number, with and without remain- ders and zeros in the answer
4 digits by 1 digit - ex- tended algorithm	1	Dividing a 4-digit number by a 1- digit divisor using the extended algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 1-digit number, without remainders and without zeros in the answer
	2	Dividing a 4-digit number by a 1- digit divisor using the extended algorithm, with remainders but without zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 1-digit number, with remainders but without zeros in the answer
	3	Dividing a 4-digit number by a 1- digit divisor using the extended algorithm, with and without re- mainders and zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 1-digit number, with and without remain- ders and zeros in the answer
4 digits by 2 digits - ex- tended algorithm	1	Dividing up to a 4-digit number by a 2-digit divisor using the division algorithm (extended/long)	• apply the written extended (long) algorithm to divide up to a 4-digit number by a 2-digit number, with and without remainders, with and without zeros in the answer
Divide multi-digit num- bers - extended algo- rithm	1	Dividing up to a 4-digit number by a 2-digit divisor (long division and whole number remainder)	• divide up to a 4-digit number by a 2- digit divisor (long division and whole number remainder)

Learning Journey	Steps	Content	Details
		Dividing - partitioning	
Dividing by using parti- tioning	1	Using partitioning to double or halve any number (up to 4-digits)	• use models and diagrams to sup- port partitioning to double or halve any number (up to 4-digits), eg 58 halved as half of 50 + half of 8, or double 58 as double 50 + double 8
			 explain the method used to double or halve
	2	Using compensation to double or halve any number (up to 4-digits)	• use models and diagrams to sup- port the use of compensation to dou- ble or halve any number (up to 4- digits), eg double 398 as double 400 and subtract 4, or half of 398 as half of 400 and subtract 1
			 explain the method used to double or halve
	3	Using partitioning or compensa- tion to double or halve any num- ber (up to 4-digits)	• use partitioning or compensation to double or halve any number (up to 4-digits)
			• compare the 2 methods and recognise numbers for which either method is more efficient or effective
			• explain the method used to double or halve
Dividing 3 digits by 1 digit - partitioning	1	Dividing a 3-digit number by a 1-digit number using partitioning and using models for support	• partition a 3-digit number to divide using models for support
	2	Dividing a 3-digit number by a 1- digit number using partitioning	• partition a 3-digit number to divide
		Dividing by subtracting partial proc	lucts
Dividing by subtracting partial products	1	Dividing by subtracting partial products	• divide numbers by subtracting par- tial products
		Dividing - area model	
Dividing numbers with an area model	1	Dividing a 3-digit number by a 1- digit number using factorising us- ing models	• solve division problems by splitting factors, eg 125 ÷ 5 as (100 ÷ 5) + (25 ÷ 5) using models such as rectangular arrays, area models
		Division problems - mixed metho	od
Divison problems- 2- digit number by 1-digit	1	Solving problems involving divi- sion of a 2-digit number by a one-	• recognise and use different nota- tions to indicate division
number		digit number, with no remainders	• use the term 'quotient' to describe the result of a division calculation
			 check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions to problems
			• use estimation to check the reason- ableness of answers to division cal- culations
	2	Solving problems involving divi- sion of a 2-digit number by a 1- digit number, with remainders	 record remainders as fractions and decimals

Learning Journey	Steps	Content	Details
			• explain why the remainder in a di- vision calculation is always less than the number divided by (the divisor)
			• check answers to mental calcula- tions using digital technologies
			• show the connection between divi- sion and multiplication where there is a remainder
			• use estimation to check the reason- ableness of answers to division cal- culations
Division problems: 3- digit number by 1-digit	1	Solving problems involving the di- vision of a number with 3 or more	 select and apply efficient mental and written strategies
number		digits by 1 digit, with no remain- der	• divide the hundreds, then the tens, and then the ones
			 use the formal algorithm
			• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions to problems
			• use estimation to check the reason- ableness of answers to division cal- culations
	2	Solving problems involving the di- vision of a number with 3 or more	 select and apply efficient mental and written strategies
		digits by 1 digit, with remainders	• divide the hundreds, then the tens, and then the ones
			• use the formal algorithm
			• record remainders as fractions and decimals
			• explain why the remainder in a di- vision calculation is always less than the number divided by (the divisor)
			• check answers to mental calcula- tions using digital technologies
			• show the connection between divi- sion and multiplication where there is a remainder
			• use estimation to check the reason- ableness of answers to division cal- culations
		Dividing with multiples	
Dividing 2-digit multi- ples of 10	1	Representing and using known facts to divide two 2-digit multi- ples of 10	• represent with models/diagrams and use known facts and place value understanding to divide two 2-digit multiples of 10, eg using the known fact of $60 \div 2 = 30$ to solve $60 \div 20$ as $(60 \div 2) \div 10$
			• know that dividing by 10 shifts the digits 1 place to the right

Learning Journey	Steps	Content	Details
Dividing 2-digit multi- ples of 100	1	Representing and using known facts to divide two 2-digit multi- ples of 10 or 100	• represent with models/diagrams and use known facts and place value understanding to divide two 2-digit multiples of 10, eg using the known fact of $600 \div 2 = 300$ to solve $600 \div 20$ as $(600 \div 2) \div 10$
			• know that dividing by 10 shifts the digits 1 place to the right and dividing by 100 shifts the digits 2 places to the right
Dividing with multiples of 1000	1	Using known facts divide 1-digit numbers with multiples of 1000	• use known facts and place value understanding to solve multiplica- tion or division problems with mul- tiples of 1000, eg $3 \times 6 = 18$ so $3 \times 6000 = 18000$
		Division word problems	
Solving division word problems	1	Solving division word problems	• divide a number with 3 or more dig- its by a single-digit divisor
			 solve a division problem with and without remainders
			• use and interpret remainders in so- lutions to division problems
			 recognise when division is required to solve word problems
			• check answers to mental calcula- tions using digital technologies
			• use inverse operations to justify so- lutions to problems
			 use estimation to check the reason- ableness of answers to division cal- culations
		Multiplying and dividing with multi	ples
Multiplying and dividing 2-digit multiples of 10	1	Representing and using known facts to multiply or divide two 2- digit multiples of 10	 represent with models/diagrams and use known facts and place value understanding to multiply or divide two 2-digit multiples of 10, eg using the known fact of 60 ÷ 2 = 30 to solve 60 ÷ 20 as (60 ÷ 2) ÷ 10 know that dividing by 10 shifts the line 1 of the line 1.
			digits 1 place to the right
	2	Representing and using known facts to multiply or divide two 2- digit multiples of 10 or 100	• represent with models/diagrams and use known facts and place value understanding to multiply or divide two 2-digit multiples of 10, eg using the known fact of $600 \div 2 = 300$ to solve $600 \div 20$ as $(600 \div 2) \div 10$
			• know that dividing by 10 shifts the digits 1 place to the right and divid- ing by 100 shifts the digits 2 places to the right; know that multiplying by 10 shifts the digits 1 place to the left and multiplying by 100 shifts the dig- its 2 places to the left

Learning Journey	Steps	Content	Details
Multiplying and dividing - multiples of 10 and 100	1	Using known facts to solve mul- tiplication and division problems with multiples of 10 and 100	• use known facts and place value understanding to solve multiplication problems with multiples of 10 or 100, eg 3 x 6 = 18 so 3 x 600 = 1800
			• use known facts and place value understanding to solve division prob- lems with multiples of 10 or 100, eg $18 \div 6 = 3$ so $1800 \div 600 = 3$
			 explain and justify the use of the strategy
		Using known facts to solve proble	ms
Using known facts to solve problems	1	Solving calculations using related facts and reasoning	• use reasoning and known facts to solve related problems including the four operations, eg, $70 \div ? = 7$; $70 \div ? = 3.5$
	2	Comparing statements using <, >, or = when multiplying by 10, 100 and 1000	• compare statements using <, > or = when multiplying by 10, 100 and 1000 eg, 71 x 1000 > 71 x 100
	3	Comparing statements when di- viding by 10, 100 and 1000 using inequality symbols	 compare statements using , > or = when dividing by 10, 100 and 1000, eg 57 000 ÷ 10 [?] 5700 ÷ 100
	4	Comparing problems that involve 4-digit numbers by a 1-digit num- ber using inequality symbols	• compare problems that involve 4- digit numbers by a 1-digit number using inequality symbols (<, > or =)
		Using the 4 operations	
Equivalent number sen- tences	1	Using equivalent number sen- tences that involve more than 1 operation to find unknown quan- tities	• complete number sentences that involve more than 1 operation by calculating missing numbers, eg $5 \times ? = 4 \times 10, 5 \times ? = 30 - 10$
			• describe strategies for completing simple number sentences and justify solutions
			 check solutions to number sen- tences by substituting the solution into the original question
	2	Describing and using inverse op- erations to solve number sen- tences with whole numbers and any of the 4 operations	• identify and use inverse operations to assist with the solution of number sentences, eg 125 ÷ 5 = ? becomes ? × 5 = 125
			• describe how inverse operations can be used to solve a number sentence
			• check solutions to number sen- tences by substituting the solution into the original question
	3	Finding the missing number in multiplication and division num- ber sentences involving simple fractions or decimals	• complete number sentences involv- ing multiplication and division, in- cluding those involving simple frac- tions or decimals, eg 7 × ? = 7.7
			• check solutions to number sen- tences by substituting the solution into the original question

Money			
Learning Journey	Steps	Money (UK) Content	Details
Using money (UK)	1	Using money: Multiplication and division problems United King- dom	• use multiplication and division to solve a variety of problems involving money and record the value using a decimal point and the symbol £
			• use estimation to check the reason- ableness of solutions to problems in- volving purchases and calculation of change
		Money (US)	
Using money (US)	1	Using money: Multiplication and division problems (US currency)	• use multiplication and division to solve a variety of problems involving money and record the value using a decimal point and the symbol \$ (US currency)
			• use estimation to check the reason- ableness of solutions to problems in- volving purchases and calculation of change (US currency)

Fractions			
Reading and writing fractions			
Learning Journey	Steps	Content	Details
Tenths and hundredths	1	Reading and writing tenths and hundredths	• read, write and represent tenths and hundredths in words, symbols and models, eg show 5 hundredths on a hundreds chart
	2	Connecting tenths and hun- dredths	• recognise that hundredths are tenths divided into 10 equal parts and that 10/100 is equal to 1/10
			• model and represent hundredths and tenths, eg 4/10 and 3/100 on a hundreds chart
		Comparing fractions	
Comparing unit fractions	1	Comparing unit fractions with dif- ferent denominators (denomina- tors of 2, 3, 4, 5, 6, 8, 10, 12)	 model, compare and order common unit fractions
			• locate and represent unit fractions on a number line
			• compare the relative value of unit fractions by placing them on a num- ber line between 0 and 1
			• investigate and explain the rela- tionship between the value of a unit fraction and its denominator
			• compare using <,>, =
Comparing and ordering proper fractions	1	Comparing and ordering proper fractions with the same numer- ators but different denominators	• compare and order proper fractions using a benchmark fraction for sup- port, eg half or quarter
		(denominators of 2, 3, 4, 5, 6, 8, 10, 12)	• compare and order fractions using the relationship between the size of the denominator and the size of the parts

Learning Journey	Steps	Content	Details
			 record comparisons using >, < or =
			 recognise that comparisons are only valid when the 2 fractions refer to the same whole
	2	Comparing and ordering proper fractions with different numera- tors and denominators (denomi-	• compare and order proper fractions using a benchmark fraction for sup- port, eg half or quarter
		nators of 2, 3, 4, 5, 6, 8, 10, 12)	 record comparisons using >, < or =
			• recognise that comparisons are only valid when the 2 fractions refer to the same whole
	3	Using common denominators to compare and order proper frac-	• find a common denominator to compare fractions
			• compare and order using <, >, =
		Using common denominators to compare and order proper frac-	find a common denominator to compare fractions
		tors	• compare and order using <, >, =
Fractions on a number line	1	Comparing and ordering fractions with the same or related denomi-	• compare fractions with the same or related denominators using <, > or =
		nators up to 20 on a number line	• order fractions with the same or re- lated denominators on a number line
		Equivalent fractions	
Multiplication and equiv- alent fractions	1	Using multiplicative strategies to recognise and find equivalent fractions with related denomina- tors up to 1 whole (denominators 2, 3, 4, 5, 6, 8, 10)	• develop mental strategies for gen- erating equivalent fractions, such as multiplying or dividing the numera- tor and the denominator by the same number
			• explain or demonstrate why 2 frac- tions are or are not equivalent
			• use multiplication and division to make equivalent fractions with a given related denominator eg $\frac{1}{2} = ?/16$
	2	Using multiplicative strategies to recognise and find equivalent fractions greater than 1 with related denominators (denomi- nators 2, 3, 4, 5, 6, 8, 10)	• develop mental strategies for gen- erating equivalent fractions, such as multiplying or dividing the numera- tor and the denominator by the same number
			• explain or demonstrate why 2 frac- tions are or are not equivalent
			• use multiplication and division to make equivalent fractions with a given related denominator eg 1 and $\frac{1}{2}$ = ?/16
			• work with proper fractions, mixed numerals and improper fractions
		Comparing factors and product	S
Comparing relative size of factors and products	1	Comparing the size of a product to the size of 1 factor based on the size of the other factor, with- out performing the indicated mul- tiplication	• compare the size of a product to the size of 1 factor based on the size of the other factor, without performing the indicated multiplication

Learning Journey	Steps	Content	Details
		Converting fractions	
Improper fractions to mixed numbers	1	Developing strategies to convert from improper fractions to mixed numerals using models and dia-	• express improper fractions as mixed numerals through the use of diagrams and number lines
		grams	 develop strategies for converting between mixed numerals and im- proper fractions
			• connect equivalent fractions >1 to division with remainders, using the number line and other models, and hence move from these to improper and mixed fractions
Mixed numbers to im- proper fractions	1	Developing strategies to convert from mixed numerals to improper fractions using models and dia-	• express mixed numerals as im- proper fractions through the use of diagrams and number lines
		grams	• develop strategies, including mul- tiplication strategies for converting between mixed numerals and im- proper fractions
		Add and subtract fractions	
Adding proper fractions	1	Adding proper fractions with the same denominator (denomina-	• add proper fractions with the same denominator
		tors 2, 3, 4, 5, 6, 7, 8)	• model and represent strategies, in- cluding using diagrams and written representations
Subtracting proper frac- tions	1	Subtracting proper fractions with the same denominator (denomi-	 subtract proper fractions with the same denominator
		nators 2, 3, 4, 5, 6, 7, 8)	 model and represent strategies, in- cluding using diagrams and written representations
Adding and subtracting proper fractions	1	Adding and subtracting proper fractions with unrelated denom- inators and answers less than 1 whole	• add and subtract proper fractions where the denominators are unre- lated
			• model and represent strategies, in- cluding using diagrams and written representations
			 use knowledge of equivalence to simplify answers when adding and subtracting fractions
	2	Adding and subtracting proper fractions with the same denomi-	• add and subtract proper fractions with the same denominator
		nator (denominators 2, 3, 4, 5, 6, 7, 8)	• model and represent strategies, in- cluding using diagrams and written representations
Add 3 or more fractions	1	Adding 3 or more fractions where the denominators are multiples using models	• add 3 or more fractions where the denominators are multiples using models eg, bar model
Adding fractions with denominators of 10 and 100	1	Adding 2 fractions with respec- tive denominators 10 and 100	• express a fraction with denomina- tor 10 as an equivalent fraction with denominator 100
			• add 2 fractions with respective de- nominators 10 and 100
Learning Journey	Steps	Content	Details
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		Adding and subtracting mixed num	lbers
Adding mixed numbers	1	Adding a whole number and a proper fraction	 add a whole number and a proper fraction
			• model and represent strategies, in- cluding using diagrams and written representations
	2	Adding mixed numerals with the same denominator	• add mixed numerals with the same denominator
			 model and represent strategies, in- cluding using diagrams and written representations
Subtracting mixed num- bers (same denomina- tor)	1	Subtracting fractions from 1 using models	• subtract fractions from one whole using models (part–whole, bar model, number line) eg, 1 - 2/8 =
	2	Subtracting a proper fraction from a whole number	• use diagrams, and mental and writ- ten strategies, to subtract a proper fraction from any whole number in- cluding 1
			 model and represent strategies, in- cluding using diagrams and written representations
		Subtracting mixed numerals with the same denominator	• subtract mixed numerals with the same denominator
			• model and represent strategies, in- cluding using diagrams and written representations
	3	Subtracting fractions and mixed numbers with the same denominator	• use models to subtract 2 or more fractions and mixed numbers with the same denominator
			• subtract fractions and mixed num- bers with the same denominator without models
			• solve problems involving subtract- ing fractions and mixed numbers with the same denominator
Subtracting mixed num- bers (related denomina- tor)	1	Subtracting mixed numbers with related denominators	• subtract mixed numbers with re- lated denominators
		Fractions: Addition/subtraction pat	terns
Number patterns: adding and subtracting fractions	1	Describing, continuing and cre- ating patterns resulting from ad- dition and subtraction including fractions	• identify, continue and create sim- ple number patterns involving addi- tion and subtraction including frac- tions
			• describe patterns using the terms 'increase' and 'decrease', eg 'The terms decrease by $\frac{1}{4}$ '
			• create, with materials or digital technologies, a variety of patterns using fractions eg $\frac{1}{4}$, 2/4, 3/4, 4/4, 5/4, 6/4,
			• use a number line or other diagram to create patterns involving fractions
			• find missing terms in a number sequence

Learning Journey	Steps	Content	Details
		Caclulating amounts of fraction	s
Calculate fractions of a quantity or amount	1	Finding a simple fraction of a quantity with and without the use of digital technologies	• calculate a simple fraction of a col- lection/quantity, with and without the use of digital technologies
	2	Finding a simple fraction of a quantity	 calculate a simple fraction of a col- lection/quantity
			• explain how unit fractions can be used in the calculation of simple fractions of collections/quantities, eg 'To calculate 3/8 of a quantity, I found $\frac{1}{8}$ of the collection first and then multiplied by 3'
Fractions of amounts us- ing bar modelling	1	Calculating fractions of amounts using bar models not exceeding 1000 (denominators 3–12)	• calculate the unit fraction of amounts using bar models, eg, 1/5 of 600 = ?
			• calculate the whole amount from a proper fraction of amounts using bar models, eg 11/5 of 240 = ?
	2	Calculating the whole from the known value of a fraction using bar models (denominators 3–12)	• calculate the whole from the known value of a unit fraction using bar models, eg, $\frac{1}{3}$ of ? = \$60
			• calculate the whole from the known value of a proper fraction of amounts using bar models, eg 3/4 of ? = 36
		Dividing fractions using models	<u>;</u>
Dividing unit fractions by whole numbers, models	1	Dividing a unit fraction by a non- zero whole number using models or diagrams	 interpret division of a unit fraction by a non-zero whole number and compute such quotients
		Dividing a unit fraction by a non- zero whole number	 divide a unit fraction by a non-zero whole number
	2	Dividing a whole number by unit fraction using models and dia- grams	• interpret division of a whole number by a unit fraction and compute such quotients
	3	Dividing a whole number by a unit fraction	• divide a whole number by a unit fraction
		Word problems and fractions	
Word problems: dividing whole numbers by frac- tions	1	Solving real world problems in- volving division of whole numbers by unit fractions.	• solve real world problems involv- ing division of whole numbers by unit fractions
	2	Solving real world problems in- volving division of unit fractions by non-zero whole numbers	• solve real world problems involving division of unit fractions by non-zero whole numbers
Word problems: non unit fractions	1	Solving word problems involving non-unit fractions	• find the whole given the non-unit fraction of a set
			 solve word problems in different contexts, eg measurement

Learning Journey	Steps	Content	Details
			• solve word problems involving frac- tions with different denominators eg 2/5 of the children have blue eyes, 2/6 have green eyes, if there are 30 chil- dren altogether how many children have brown eyes?
Word problems: proper fractions & mixed num- bers	1	Solving word problems involving both proper fractions and mixed numerals with the same denom-	 solve word problems involving adding and subtracting fractions with the same denominator
		inator	• model and represent strategies, in- cluding using diagrams and written representations
	2	Solving real world problems in- volving multiplication of fractions and mixed numbers	• solve real world problems involving multiplication of fractions and mixed numbers
		2-step problems with fractions	
fraction problems (no grouping symbols)	1	Calculating 2-step problems in- volving fractions and 1-digit num- bers using the four operations (no grouping symbols)	• combine the four operations when calculating fractions with related de- nominators using models, eg, 3 $\frac{1}{3} + \frac{1}{3}$ - 2 =
fraction problems (grouping symbols)	1	Calculating 2-step problems in- volving fractions and 1-digit num- bers using the four operations (grouping symbols)	• combine the four operations when calculating fractions with related denominators using models, eg, $(2/3 + 2/9) \div 4 = 2/9$
		Multiplication and scaling	
Interpreting multiplying fractions as scaling	1	Interpreting multiplication of proper fractions as scaling	• explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognising mul- tiplication by whole numbers greater than 1 as a familiar case)
			• explain why multiplying a given number by a fraction less than 1 re- sults in a product smaller than the given number
			• relate the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1

Decimals			
Learning Journey	Stone	Decimals to thousandths	Details
Decimal thousandths 1	1	Introducing decimal thousandths	• recognise that the place value sys- tem can be extended beyond hun- dredths
			 express thousandths as decimals
			• interpret decimal notation for thou- sandths, eg 0.123 = 123/1000
			• state the place value of digits in decimal numbers of up to 3 decimal places
			 model thousandths using concrete materials

Learning Journey	Steps	Content	Details
			• represent decimal fractions, eg as fractions (tenths, hundredths and thousandths), using concrete materi- als and in diagrams
Comparing and ordering decimals to thousandths	1	Comparing and ordering decimal fractions of up to 3 decimal places	• place decimal numbers of up to 3 decimal places on a number line be- tween 0 and 1
			• compare and order decimals with 3 decimal places using >, < and =
			• compare and order decimals with a different number of decimal places, up to 3 decimal places
Rounding decimals	1	Round decimals to hundredths	 round decimal thousandths to the nearest hundredth
	2	Round decimals to tenths or hun- dredths	 round decimal thousandths to the nearest tenths or hundredths
Common fraction and decimal equivalences	1	Knowing common fraction and decimal equivalences	• know fraction and decimal equiva- lences for thirds, quarters, fifths and eighths
	2	Connecting fraction and decimal equivalences for $\frac{1}{2}$, $\frac{1}{4}$ and 3/4	\bullet connect fraction and decimal equivalences for $\frac{1}{2}, \frac{1}{4}$ and 3/4 using models, decimal and fraction notation
Partitioning decimal thousandths	1	Partitioning decimal thousandths	• use place value to partition deci- mals of up to 3 decimal places
			• partition decimals of up to 3 deci- mal places in non-standard forms
			 partition fractions up to thou- sandths into decimals and fractions
		Adding with decimals	
Adding decimals to hun- dredths	1	Adding decimals to hundredths	 add a whole number and a decimal (to hundredths)
			• add 2 decimal numbers in tenths
			• add 2 decimals numbers in hun- dredths
			• add decimal numbers to 2 places (mixed place value)
		Subtracting with decimals	
Subtracting decimals to hundredths	1	Subtracting decimals to hun- dredths	• subtract a decimal up to the hun- dredths place from a whole number
			 subtract 2 decimal numbers in tenths
			• subtract 2 decimal numbers in hun- dredths
			 subtract 2 decimal numbers to 2 places (mixed place value)
Subtract decimals with 3 decimal places	1	Subtracting decimals with 3 dec- imal places using bridging to 10 and models	• apply bridging to 10 to subtract decimals and whole numbers eg, 3.8 – 0.5 as 3.8 – 0.2 – 0.3
	2	Subtracting decimals with 3 dec- imal places using rounding and compensating and models	• apply rounding and compensating to subtract decimals and whole num- bers eg, $9.9 - 5.2$ as $10 - 5.2 = 4.8$, $4.8 - 0.1 = 4.7$

Learning Journey	Steps	Content	Details
Subtract decimals in dif- ferent place values	1	Subtracting decimals in different place values	 subtract numbers with different numbers of decimal places eg, 4.543 - 2.34
		Decimals: Addition/subtraction patt	erns
Decimals: Addi- tion/subtraction patterns	1	Describing, continuing and cre- ating patterns resulting from ad- dition and subtraction including decimals	 identify, continue and create simple number patterns involving addition and subtraction including decimals describe patterns using the terms
			'increase' and 'decrease', eg for the pattern 4.8, 4.1, 3.4, 2.7,, 'The terms decrease by 0.7'
			• create, with materials or digital technologies, a variety of patterns using decimals, eg 2.2, 2.0, 1.8, 1.6,
			• use a number line or other diagram to create patterns involving decimals
			• find missing terms in a number se- quence
		Adding and subtracting with decin	nals
Adding and subtracting wholes and decimals	1	Adding a decimal number up to 3 decimal places to a whole number	• add a decimal number and whole numbers eg, 143.0 + 1.34
	2	Subtracting decimal numbers up to 3 decimal places from a whole number	• subtract decimal numbers from whole numbers eg, 12.0 – 1.3
		Multiplying with decimals	
Introducing multiplying with decimals	1	Representing multiplication of decimals to tenths and whole numbers using objects and pic- torial models, including area models	• represent multiplication of decimals to tenths and whole numbers using objects and pictorial models, includ- ing area models
	2	Representing multiplication of decimals or decimals and whole numbers with products to the tenths using objects and pictorial models, including area models	• represent multiplication of decimals with products to the tenths using ob- jects and pictorial models, including area models
	3	Representing multiplication of decimals with products to the hundredths using objects and pictorial models, including area models	• represent multiplication of decimals with products to the hundredths us- ing objects and pictorial models, in- cluding area models
	4	Multiplying tenths and whole numbers using mental strategies	• use efficient mental strategies to multiply tenths and whole numbers
Multiplying decimals up to 2 places	1	Multiplying decimals up to 2 places using the standard algo-	• multiply a whole number and a dec- imal up to hundredths
			• multiply 2 decimal numbers in tenths
			• multiply 2 decimal numbers in hun- dredths
			• multiply 2 decimal numbers up to 2 places

Learning Journey	Steps	Content	Details			
	Dividing with decimals					
Dividing numbers by 10	1	Dividing 1-digit numbers by 10 (decimal answers)	• divide 1-digit numbers by 10 and demonstrate that the answer is 10 times smaller by using place value models (Gattegno chart and place value model) eg, $7 \div 10 = 0.7$			
	2	Dividing 2-digit numbers by 10 (decimal answers)	• divide 2-digit numbers by 10 and demonstrate that the answer is 10 times smaller by using place value models (Gattegno chart and place value model) eg, $72 \div 10 = 7.2$			
Dividing numbers by 100	1	Dividing 1- or 2- digit numbers by 100 using models	• use models to divide whole num- bers by 100, eg, 7,000 ÷ 100, 700 ÷ 100, 70 ÷ 100, 7 ÷ 100 (place value tables and number sentences)			
Dividing whole numbers and decimals up to 2	1	Dividing whole numbers and dec- imals up to 2 places using the	• divide whole numbers by decimals up to 2 places			
places		standard algorithm	• divide a decimal number up to hun- dredths by another decimal number up to hundredths			
Decimal sequences	1	Identifying and creating simple rules for decimal sequences	 identify and create simple rules for decimal sequences eg, add 0.15 			

11 Measurement

Length			
	Change	Length - metric measures	Deteile
Converting Journey	Steps	Content	Details
and m)	1	and metres (whole numbers only)	describe 1 km as 1000 m
			• convert between kilometres and metres using whole numbers
			• record measurement equivalents in a table
			• explain the relationship between the size of a unit and the number of units needed
Converting length (m and mm)	1	Converting between metres and millimetres (whole numbers only)	• describe 1 metre as 1000 millime- tres
			• convert between millimetres and metres using whole numbers and record measurement equivalents in a two-column table
			• explain the relationship between the size of a unit and the number of units needed
Comparing metric lengths	1	Comparing lengths in metres and kilometres	• compare lengths and distances us- ing metres and kilometres with the symbols < > =
	2	Comparing lengths in metres and kilometres, up to 10 km using in- equality symbols (whole numbers only)	• compare lengths in metres and kilo- metres, up to 10 km using inequality symbols
	3	Comparing lengths in millimetres, centimetres, metres and kilome- tres	• compare lengths and distances us- ing millimetres, centimetres, metres and kilometres using symbols <, >, =
Ordering lengths	1	Ordering lengths in metres and kilometres	• order lengths and distances using metres and kilometres
	2	Ordering lengths in millimetres, centimetres, metres and kilome- tres	• order lengths and distances using millimetres, centimetres, metres and kilometres
Recording length in mixed units	1	Recording lengths using mixed units	• record lengths and distances us- ing combinations of millimetres, cen- timetres, metres and kilometres
		Decimal notation and the metric sy	stem
Decimal notation and the metric system	1	Recording kilometres and metres using decimal notation	• record lengths and distances using decimal notation to 3 decimal places
	2	Connecting decimal representa- tions to the metric system	• recognise the equivalence of whole-number and decimal rep- resentations of measurements of length
			• interpret decimal notation for lengths and distances involving millimetres, centimetres, metres and kilometres
Converting units of length to 1 decimal place	1	Converting between standard metric units of length to 1 decimal place	• understand the meaning of metric prefixes, eg kilo-, centi- and milli-

Learning Journey	Steps	Content	Details
			• convert between centimetres and metres and vice versa
			• convert between centimetres and millimetres and vice versa
			• convert between metres and kilo- metres and vice versa
			• convert among millimetres, cen- timetres, metres and kilometres
			• explain and use the relationship be- tween the size of a unit and the num- ber of units needed to assist in deter- mining whether multiplication or divi- sion is required when converting be- tween units
		Length - customary units	
Miles and kilometres	1	Converting between imperial and metric units of length (miles and kilometres)	• convert between imperial and met- ric units of length (miles and kilome- tres) including real-world examples
Converting customary units of length	1	Converting between customary units of length	• convert between customary units of length
	2	Converting between imperial units of length (feet and inches)	• convert between imperial units of length (feet and inches) including real-world examples
		Length - customary and metric un	its
Converting customary and metric units of length	1	Converting informally between metric and imperial units of length	• understand and use approximate equivalences between metric units and common imperial units such as centimetres and inches, feet and me- tres, kilometres and miles
	2	Converting between imperial and metric units of length (inches and centimetres)	• convert between imperial and met- ric units of length (inches and cen- timetres) including real-world exam- ples
Real world conversions	1	Using conversions in real-world multi-step problems	• use conversions in real-world multi- step problems

Mixed metric measures			
		Mixed metric measures	
Learning Journey	Steps	Content	Details
Metric measures	1	Recognising suitable metric mea- sures for length, mass and capac- ity	• recognise the most appropriate unit of measure (cm, kg, km, g, tonnes, mL, mm, L)
			 recognise the most appropriate measurement eg 5 mm, 5 cm, 5 m, 5 km (including simple fractions and decimals)
	2	Solving measurement problems where conversion is required for all metric units	• solve measurement problems where conversion is required for all metric units

Perimeter			
Learning Journey	Steps	Content	Details
Perimeter on a grid	1	Calculating the perimeter of recti- linear shapes on a grid (informal units)	• calculate the perimeter of rectilinear shapes by counting squares on a grid
	2	Solving problems involving perimeters on a grid	• solve problems involving perimeter (informal units) eg, which shape has the longest perimeter, create a shape with the longest/shortest perimeter
Finding the perimeter of rectangles	1	Calculating the perimeters of rectangles	• use the term 'dimensions' to de- scribe the 'lengths' and 'widths' of rectangles and squares
			• measure and calculate the perime- ter of a large rectangular section of the school
			• recognise that rectangles with the same perimeter may have different dimensions
			• recognise that rectangles with di- mensions given in different units may have the same perimeter
			• explore different methods of finding the perimeter of rectangles
			• create a rule to find the perimeter of any rectangle
Finding the perimeter of common 2D shapes	1	Calculating the perimeters of common two-dimensional shapes	• explain that the perimeters of two- dimensional shapes can be deter- mined by calculating the sum of all the side lengths
			• record calculations used to find the perimeters of two-dimensional shapes
			• find the length of 1 unknown side of a shape given the perimeter
Finding the perimeter of polygons	1	Calculating the perimeters of reg- ular polygons	• explain the relationship between the lengths of the sides and the perimeters for polygons (including equilateral triangles and squares)
			 record calculations used to find the perimeters of two-dimensional shapes
			• find the length of 1 unknown side of a shape given the perimeter
Calculating perimeter of composite shapes	1	Calculating the perimeters of composite rectilinear shapes	• explain that the perimeters of com- posite rectilinear shapes can be de- termined by calculating the sum of all the side lengths
			• calculate the lengths of any un- known side lengths using lengths of other sides
			• record calculations used to find the perimeters of composite rectilinear shapes

Learning Journey	Steps	Content	Details
	2	Calculating the perimeter of recti- linear shapes using a formula	• calculate the perimeters of rectilin- ear shapes using a formula
Finding a missing side length given the perime-	1	Calculating the side length of a rectangle given the perimeter	• find the length of 1 unknown side of a rectangle given the perimeter
ter			• find possible length combinations of 2 unknown sides of a rectangle given the perimeter
Calculating perimeter (metric and customary units)	1	Applying the formula for the perimeter of a rectangle (metric and customary units)	• apply the formula for perimeter of a rectangle to find the perimeter of rectangles given 2 side lengths mea- sured in the same units (metric and customary units)
			• find the width or length of a rectan- gle given the perimeter and the mea- sure of the other side
	2	Solving word problems involving the perimeter of a rectangle (met- ric and customary units)	• solve word problems involving the perimeter of a rectangle (metric and customary units)

Area			
		Area (metric units)	
Learning Journey	Steps	Content	Details
Area formula (metric)	1	Developing a multiplicative for- mula for area of a rectangle using metric units	• connect the area of a rectangle to the multiplication of its side lengths and develop a formula (in words) for the area of a rectangle, eg Area of rectangle = length x width
			• calculate the area of a rectangle by multiplying the length and width of the rectangle
			• calculate a side length of the rect- angle given its area and one other side length
			• explain methods for finding the area of a square as a type of rectan- gle; connect multiplying equal sides to the concept of square numbers
Area and perimeter of rectangles	1	Using area models and the dis- tributive law to find the area of a rectangle	• use area models and the distribu- tive law to find the area of a rectan- gle
	2	Calculating the area and perime- ter of rectilinear shapes	• calculate the area and perimeter of rectilinear shapes
Area of a triangle	1	Estimating the area of a trian- gle by counting the number of squares (cm ²)	• estimate the area of a triangle by counting the number of squares (cm ²)

Learning Journey	Steps	Content	Details
		Area (customary units)	
Area formula using cus- tomary units	1	Developing a multiplicative for- mula for area of a rectangle using customary units	• connect the area of a rectangle to the multiplication of its side lengths and develop a formula (in words) for the area of a rectangle, eg Area of rectangle = length x width
			• calculate the area of a rectangle by multiplying the length and width of the rectangle
			• calculate a side length of the rect- angle given its area and one other side length
			• explain methods for finding the area of a square as a type of rectan- gle; connect multiplying equal sides to the concept of square numbers
		Exploring area	
Find the area of a rect- angle with fractional sides	1	Finding the area of a rectangle with fractional side lengths by tiling	• tile a rectangle with unit squares of the appropriate unit fraction of the side lengths; recognise that the area is the same as would be found by multiplying the side lengths
			• multiply fractional side lengths to find areas of rectangles
			• represent fraction products as rect- angular areas
Exploring shapes with the same area	1	Exploring rectilinear shapes with the same area	 sort rectilinear shapes with the same area
			 draw rectilinear shapes with the same area

Volume and capacity			
		Volume and capacity (cubic cm)
Learning Journey	Steps	Content	Details
Measuring with cm ²	1	Using cubic centimetres to mea- sure volume	• measure the volumes of rectangu- lar containers by packing them with cubic-centimetre blocks
			• explain the advantages and disad- vantages of using cubic-centimetre blocks as a unit to measure volume
			• describe arrangements of cubic- centimetre blocks in containers in terms of layers
			• connect the layers of blocks with multiplying the dimensions
Measuring with m ²	1	Introducing formal units for vol- ume: cubic metres	• recognise the need for a formal unit larger than the cubic centimetre
			• construct and use the cubic metre as a unit to measure larger volumes
			• explain why volume is measured in cubic metres in certain situations, eg wood bark, soil or concrete; select and justify referents for cubic cm

Learning Journey	Steps	Content	Details
			• recognise that a cubic metre can have dimensions other than a cube of side 1 metre
			• record volumes using the abbrevia- tion for cubic metres (m ³)
			• estimate the size of a cubic metre, half a cubic metre and 2 cubic metres
Measuring with m ² and cm ²	1	Estimating volumes using cubic metres and cubic centimetres as referents	 make appropriate estimations of volumes using cubic metres and cu- bic centimetres as referents
		Volume and capacity (metric unit	ts)
Measuring volume (mL and L)	1	Selecting and justifying appropri- ate metric units to measure vol- ume and capacity (mL and L)	• select and use appropriate units to measure the capacities of a variety of containers
			 select and use appropriate units to estimate the volumes of a variety of objects
Converting metric units of volume and capacity	1	Converting metric units of volume and capacity when the conver- sion factor is given	• convert metric units of volume and capacity when conversion factor is given
Estimate capacity (mL and L)	1	Estimating given capacities in millilitres and litres	• make appropriate estimations of capacities using millilitres and litres
		Volume and capacity (customary u	nits)
Converting customary units of volume and capacity	1	Converting customary units of volume and capacity when the conversion factor is given	• convert customary units of volume and capacity when the conversion factor is given
	2	Converting between imperial units of capacity (gallons and pints)	 convert between imperial units of capacity (gallons and pints) including real-world examples
	Vol	ume and capacity (customary and	metric)
Convert between cus- tomary & metric units of volume	1	Converting informally between metric and customary units of volume and capacity	• understand and use approximate equivalences between metric units and common customary units such as litres and pints

Mass				
Mass (metric units)				
Learning Journey	Steps	Content	Details	
The tonne <u>1</u>	1	Introducing formal units for mass: the tonne	• establish the need for formal units for very large masses and introduce tonnes, including that 1000 kg = 1 tonne	
			• identify everyday situations where tonnes are an appropriate unit for measuring the mass	
			• apply place value understanding to modelling, describing and recording metric units of measurement	
			• introduce the abbreviation 't' for recording mass in tonnes and record masses using tonnes and kilograms, eg 1 t 750 kg	

Learning Journey	Steps	Content	Details
			• calculate the number of kilograms in a whole number of tonnes
			• interpret simple fractions $(\frac{1}{4}, \frac{1}{2}, \frac{3}{4})$ of a tonne and relate these to the number of kilograms
Convert mass up to 3 decimal places	1	Converting between metric units of mass up to 3 decimal places using knowledge of multiplying and dividing by 10, 100 and 1000	 convert between measures of length, mass and capacity using a table
Comparing mass up to 3 decimal places	1	Comparing mixed metric units of mass up to 3 decimal places	 compare measures of length, mass and capacity
Solving problems involv- ing masses of the same unit	1	Solving problems involving masses of the same unit	• solve a variety of problems involv- ing masses of the same unit
Ordering units of mass	1	Ordering mixed metric units of mass up to 3 decimal places	• order measures of length, mass and capacity
		Mass (customary units)	
Converting between customary units of mass	1	Converting between customary units of mass	 convert between customary units of mass
	2	Converting between imperial units of mass (pounds and ounces)	 convert between imperial units of mass (pounds and ounces) including real-world examples
	3	Converting between imperial units of mass (stone and pounds)	 convert between imperial units of mass (stone and pounds) including real-world examples

Time					
	Reading time				
Learning Journey	Steps	Content	Details		
Using 24-hour notation 1	1	Using 24-hour notation	• recognise 24-hour time notation as an alternative to 12-hour time nota-tion		
			• describe familiar situations in which 24-hour time is used such as trans- port timetables, armed forces, on household appliances		
			• identify whether a time expressed in 24-hour time notation represents a time before or after midday/noon		
			• convert between 24-hour time no- tation and 12-hour time notation		
			• convert between analogue and 24- hour digital clocks		
			• record 24-hour time using neces- sary conventions		
			• read and write time on 24-hour dig- ital clocks to the minute using the terms o'clock, past and to, including half-past, quarter past, and quarter to		

Learning Journey	Steps	Content	Details
Converting units of time	1	Converting between hours, min- utes and seconds (whole num- bers only)	• convert between hours and min- utes and vice versa (whole numbers only)
			 convert between minutes and sec- onds and vice versa (whole numbers only)
			 convert between hours, minutes and seconds using whole numbers and record measurement equivalents in a two-column table
	2	Converting between hours, min- utes and seconds (including quar- ter and half hours and minutes)	 convert between hours and minutes and vice versa, includ- ing quarter-hour, half-hour and three-quarter-hour conversions
			• convert between minutes and sec- onds and vice versa, including quar- ter minute, half minute, and three- quarter minute conversions
	3	Converting between units of time (including quarter and half hours and minutes)	 convert between weeks and days (whole number of weeks only)
			• convert between months and years (whole number of years only)
			• convert between all units of time using whole numbers and record measurement equivalents in a two- column table
Understanding elapsed time	1	1 Calculating elapsed time	 solve problems involving elapsed time given the starting or finishing time
			 estimate, measure and represent time intervals to the nearest second
			• use a stopwatch to measure, com- pare and order the duration of events
			• use start and finish times to calcu- late the elapsed time of events
			• select an appropriate unit to mea- sure a particular period of time

12 Geometry

2D shape			
		Classifying 2D shape	
Learning Journey	Steps	Content	Details
Regular and irregular polygons	1	Sorting among polygons, reg- ular polygons and other two-	• explain the difference between reg- ular and irregular shapes
		dimensional shapes	• identify two-dimensional shapes that are not polygons
Classifying triangles	1	Classifying triangles by their sides and angles	• identify and name right-angled, equilateral, isosceles and scalene tri- angles
			• compare and describe features of the sides and angles of equilateral, isosceles and scalene triangles
			• identify triangles that are right- angled as well as scalene or isosceles
			• explore, by measurement, side and angle properties of equilateral, isosceles and scalene triangles
Classifying quadrilater- als	1	Classifying quadrilaterals by their features	• explore, by measurement angle properties of squares, rectangles, parallelograms and rhombuses
			• select and classify a two- dimensional shape from a de- scription of its features including parallel and perpendicular lines
			 recognise that two-dimensional shapes can be classified in more than 1 way
			• explain the difference between reg- ular and irregular shapes
	2	Classifying quadrilaterals using a variety of strategies	• classify two-dimensional figures in a hierarchy based on properties
			 interpret a hierarchy diagram of two-dimensional shapes and their properties
			• use Venn diagrams to record clas- sifications
			 interpret classifications repre- sented using Venn diagrams
Classifying 2D figures in a hierarchy	1	Classifying two-dimensional fig- ures in a hierarchy	• classify two-dimensional figures in a hierarchy based on properties
			 interpret a hierarchy diagram of two-dimensional shapes and their properties
		Rotational symmetry	
Rotational symmetry	1	Recognising rotational symmetry in shapes and designs	• establish and define that rotational symmetry occurs when a shape looks identical to the original after being turned less than a full turn
			 determine whether or not given shapes and designs have rotational symmetry

Learning Journey	Steps	Content	Details
			 sort shapes according to whether they are rotationally symmetrical or not
	2	Ordering of rotational symmetry	• define the order of rotational sym- metry as the number of times the shape looks identical to the original as it rotates around the centre of symmetry
			• determine the order of rotational symmetry for given shapes and designs
			• compare order of rotational sym- metry for odd and even sided regular polygons

3D shape					
	Classifying 3D shapes				
Learning Journey	Steps	Content	Details		
Classifying prisms	1	1 Comparing, describing and nam- ing prisms	• identify and determine the num- ber of pairs of parallel faces of three- dimensional objects, eg 'A rectangu- lar prism has three pairs of parallel faces'		
			 identify the 'base' of prisms 		
			• recognise that the base of a prism is not always the face where the prism touches the ground		
			 name prisms according to the shape of their base, eg rectangular prism 		
			 recognise a cube as a special type of prism 		
Classifying pyramids	1	Comparing, describing and nam- ing pyramids	• identify and determine the number of faces of three-dimensional objects		
			 identify the 'base' of pyramids 		
			• recognise that the base of a pyra- mid is not always the face where the prism touches the ground		
			• name pyramids according to the shape of their base, eg square pyra- mid		
		Nets of shapes			
Nets of prisms and pyra- mids	1	Connecting prisms and pyramids with their nets	• examine a diagram to determine whether it is or is not the net of a prism or pyramid		
			 explain why a given net will not form a prism or pyramid 		
			• visualise and sketch nets for a given prism or pyramid		
			• recognise whether a diagram is a net of a particular prism or pyramid		

Learning Journey	Steps	Content	Details
			 visualise and name prisms and pyramids, given diagrams of their nets
			• select the correct diagram of a net for a given prism or pyramid from a group of similar diagrams where the others are not valid nets of the object
Connecting 3D objects with their nets	1	Connecting three-dimensional objects with their nets	• examine a diagram to determine whether it is or is not the net of a closed three-dimensional object
			• explain why a given net will not form a closed three-dimensional object
			 visualise and sketch nets for given three-dimensional objects
			• recognise whether a diagram is a net of a particular three-dimensional object
			• visualise and name prisms and pyramids, given diagrams of their nets
			• select the correct diagram of a net for a given three-dimensional object (include other regular polyhedrons)
		Cross sections of 3D shapes	
Cross sections of prisms and pyramids	1	Investigating cross-sections of prisms and pyramids	• recognise that prisms have a 'uni- form cross-section' when the section is parallel to the base
			• recognise that the base of a prism is identical to the uniform cross-section of the prism
			• recognise that pyramids do not have a uniform cross-section when the section is parallel to the base
	2	2 Investigating properties of prisms and pyramids	• identify, describe and compare the properties of prisms and pyramids, including: number of faces, shape of faces, number and type of identical faces, number of vertices, number of edges
			• describe similarities and differences between prisms and pyramids, eg between a triangular prism and a hexagonal prism, between a rect- angular prism and a rectangular(- based) pyramid
			• determine that the faces of prisms are always rectangles except the base faces, which may not be rect- angles

Learning Journey	Steps	Content	Details
			• use the term 'apex' to describe the highest point above the base of a pyramid or cone

Angles			
		Measuring and classifying angle	S
Learning Journey	Steps	Content	Details
Formal units for angles	1	Using a circular protractor to understand a 1-degree angle as $\frac{1}{360}$ of a turn	\bullet use a circular protractor to understand a 1-degree angle as $\frac{1}{360}$ of a turn
Measure with a protrac- tor	1	Measuring and estimating angles of up to 180° in degrees	• measure angles of up to 180° using a protractor
			• estimate angles of up to 180° and check by measuring
Classifying angles by size	1	Classifying angles by their size in degrees	• connect the term 'right angle' with 90°, 'straight angle' with 180° and 'angle of revolution' with 360°
			• establish and recall the angle size in degrees for each of the classifica- tions: acute, obtuse and reflex
			• classify angles with a specified size in degrees as acute, right, obtuse, straight, reflex or a revolution
			 draw angles that are acute, right, obtuse, straight, reflex or a revolution using a ruler only
Finding the total of an- gles	1	Calculating angles that total 360° or a complete turn, using knowl-	• calculate pairs of angles that total a complete turn, eg, x + 227° = 133°
		edge of a straight line	• calculate more than two angles that total a complete turn, eg, $115^\circ + x + 157^\circ = 360^\circ$
Investigating right an- gles	1	Investigating and relating right angles in other contexts	• investigate right angles and de- grees in right angles eg, 90° in a right angle, 180° in a straight line

Position, movement and direction				
			Transformations	
Learning Jo	burney	Steps	Content	Details
One-step tions	transforma-	1	Defining transformations: One- step translations, reflections and rotations	• define translations, reflections and rotations of shapes and describe the similarities and differences between the original shape and the trans- formed shape
				• identify the one-step transforma- tion used to move a shape from 1 po- sition to another
		2	Identifying combinations of trans- formations	 identify combinations of up to 3 transformations used to move a shape from 1 position to another

Learning Journey	Steps	Content	Details
			• perform combinations of up to 3 transformations to move a shape from 1 position to another without the use of digital technology
			• perform combinations of up to 3 transformations to move a shape from 1 position to another using dig- ital technology
			• explore the equivalence of one-step transformations and combinations of transformations used to move a shape from 1 position to another
		Tessellations	
Exploring tessellations	1	Recognising tessellations	• recognise and describe transforma- tions in tessellating designs consist- ing of a single shape
			• create and record tessellating de- signs using transformations on a sin- gle shape
			• determine whether a shape will or will not tessellate
		Compass directions	
Using cardinal compass directions	1	Introducing intercardinal com- pass directions	• understand, locate and label the 4 intercardinal compass directions on a compass rose: north-east (NE), south-east (SE), south-west (SW) and north-west (NW)
			• connect the 4 intercardinal com- pass directions to features of the lo- cal area from their particular location
			• determine the direction of other car- dinal and intercardinal compass di- rections when given one of the car- dinal or intercardinal compass direc- tions
	2	Describing locations on maps using cardinal and intercardinal compass directions	• use the cardinal and intercardinal compass directions to describe the location of one feature in relation to another on a map that has an arrow representing north
	3	Drawing routes on maps using cardinal and intercardinal com- pass directions	• draw a route on a map given a se- quence of directions involving cardi- nal and intercardinal directions, and landmarks
			• use cardinal and intercardinal di- rections, and landmarks, to describe a route between 2 locations on a map
		Enlarging 2D shapes	
Enlarging 2D shapes us- ing scale factors	1	Enlarging 2D shapes	• enlarge a simple 2D shape using a centre of enlargement and a simple scale factor, eg 2, 3, 4, 5, 10
			• recognise the simple scale fac- tor used in an enlargement of a 2D shape.

Learning Journey	Steps	Content	Details
		The Cartesian plane - first quadra	int
The first quadrant	1	Using the Cartesian coordinate system in the first quadrant only	• recognise that the axes are labelled x and y
			• locate and plot points on a Carte- sian plane
Plotting coordinates on a grid	1	Recording the position of points on a coordinate plane using x and y coordinates	• record the position of points on a Cartesian plane using x and y coor- dinates
	2	Plotting points in the Cartesian coordinate system in the first quadrant only	• plot points on a Cartesian plane us- ing x and y coordinates
	3	Finding the missing coordinate of a figure in the first quadrant only	• find the missing coordinate of a figure with a Cartesian plane (first quadrant only)
	4	Plotting points from coordinates to create a shape, first quadrant only	• plot a sequence of coordinates to create a shape in the first quadrant
Translation on a grid	1	Translating points on the Carte- sian plane in the first quadrant only	• follow two-step instructions to translate points or shapes on a Cartesian plane eg, 1 up 2 right
			• follow three step instructions to translate points or shapes on a Cartesian plane eg, 1 up 2 right, 1 up
	2	Describing the translation and movement of points and shapes on the Cartesian plane	• describe the translation and move- ment of a point or shape on the Cartesian plane using specific lan- guage such as: left/right/up/down

13 Operations & Algebraic Thinking

Algebra			
		Writing and interpreting expression	ons
Learning Journey	Steps	Content	Details
Writing & interpreting expressions without solving	1	Writing and interpreting multi- step numerical expressions with- out solving	• write simple expressions without evaluating them, eg express the cal- culation 'add 8 and 7, then multiply by 2' as $2 \times (8 + 7)$
Forming equations	1	Writing 1-step equations using variables (four operations)	• write 1-step equations using vari- ables to represent a word problem (four operations), eg, 5 + y = 8
	2	Writing 1-step expressions using variables (four operations)	• write 1-step expressions using vari- ables to represent a word problem (four operations) eg 5 + y
Solve two-step equa- tions	1	Matching 2-step equations to bar model representation	• match 2-step equations to bar model representation
	2	Solving 2-step equations using bar models	 solve 2-step equations using bar models
Find pairs of values	1	Finding values of a pair of vari- ables using the four operations (positive whole numbers only)	 find values of a pair of variables eg, a + b = 6
	2	Finding values of a pair of vari- ables involving 2-step calcula- tions using the four operations (positive whole numbers only)	• find values of a pair of vari- ables involving 2-step calculations eg, 7x + 4 = y

14 Statistics and data

Data presentation				
		Column graph		
Learning Journey	Steps	Content	Details	
Interpreting data in col- umn/bar graphs	1	Interpreting primary and sec- ondary data in a column graph with many-to-one correspon- dence	• describe and interpret data pre- sented in column graphs; ask and an- swer questions related to data in a column graph	
			• determine the total number of data values represented in column graphs	
			• identify and describe relationships that can be observed in a column graph; compare column graphs with other data displays	
		Line graph		
Draw line graphs and solve problems	1	Constructing a line graph using a scale of many-to-one correspon- dence	• construct a line graph using a scale of many-to-one correspondence, with and without the use of digital technologies	
			• name and label the horizontal and vertical axes when constructing graphs	
			• choose an appropriate title to de- scribe the data represented in a data display	
			• determine an appropriate scale of many-to-one correspondence to rep- resent the data in a data display	
			• mark equal spaces on the axes when constructing graphs, and use the scale to label the markers	
			• interpret data in line graph repre- senting primary data; ask and an- swer questions related to the data in the display; draw conclusions	
Use line graphs to solve problems	1	Interpreting primary and sec- ondary data in a line graph	 interpret line graphs using the scales on the axes 	
			 describe and interpret data pre- sented in line graphs 	
			• identify and describe relationships that can be observed in data displays	
		Dot plots?		
Reading and interpret- ing data in a dot plot	1	Representing and interpreting measurements on a line plot, including fractional amounts	• make a line plot to display a data set of measurements in fractions of a unit $(\frac{1}{2}, \frac{1}{4}, \frac{1}{8})$	
			• use operations on fractions for this grade to solve problems involving in- formation presented in line plots	

Learning Journey	Steps	Content	Details
	2	Reading and interpreting data in a dot plot	• describe and interpret data in a dot plot; ask and answer questions re- lated to the data in the display; draw conclusions, eg 'The graph shows that the heights of all children in the class are between 125 cm and 154 cm'
			 determine the total number of data values represented in dot plots
			• identify and describe relation- ships that can be observed in data displays, eg 'There are four times as many children in Year 5 whose favourite food is noodles compared to children whose favourite food is chicken'
			• compare dot plots to other types of displays
	3	Constructing a dot plot	 represent numerical data in a dot plot, eg the number of siblings of each student in the class
			• interpret data in a dot plot; ask and answer questions related to the data in the display; draw conclusions, eg 'The graph shows that the heights of all children in the class are between 125 cm and 154 cm'
		Pie charts	
Pie charts with simple percentages	1	Reading and interpreting sec- tor/pie charts with simple per- centages	 read data in a sector/pie chart seg- mented into tenths and with one- to-one correspondence; relate re- sponses to percentages
			 interpret data in a pie graph; ask and answer questions related to the data in the display; draw conclusions
			• identify the whole from the parts and vice versa in a pie chart where each category value is a percentage that is a multiple of 10
Pood and interpret to		Interpreting data and achieve	
bles	1	problems using data in tables	 describe and interpret data pre- sented in tables, eg maximum and minimum values; total number of re- sponses; differences between values
			• identify and describe relationships; draw conclusions and ask questions
			• interpret data presented in two- way tables that represent two cate- gorical variables
			• ask and answer comparative and relational questions related to data in a two-way table
Two-way tables	1	Introducing and interpreting bi- variate data and two-way tables	• interpret data presented in two- way tables that represent two cate- gorical variables

Learning Journey	Steps	Content	Details
			• ask and answer comparative and relational questions related to data in a two-way table
	2	Representing bivariate data in a two-way table	• create a two-way table to organise data involving 2 categorical variables
			• ask and answer comparative and relational questions related to data in a two-way table
		Side-by-side column/bar graphs	S
Side-by-side column graphs	1	Introducing and interpreting side- by-side column graphs	• interpret side-by-side column graphs for 2 categorical variables, eg favourite television show of stu- dents in Year 1 compared to that of students in Year 6
			• ask and answer comparative and relational questions related to data in a side-by-side column graph
	2	Representing bivariate data in a side-by-side column graph	• construct a side by side column graph for two categorical variables eg favourite television show of stu- dents in Year 1 compared to that of students in Year 6
			• ask and answer comparative and relational questions related to data in a side by side column graph
		Interpreting data	
Interpreting discrete & continuous secondary	1	Interpreting discrete and continu- ous secondary data	• differentiate between first-hand and second-hand data
aata			 read, interpret, and draw conclu- sions from secondary data presented in charts, tables, and graphs (includ- ing broken-line graphs)
Understanding the me		Median	and an an est of a share in data dia
dian	1	Understanding the median	• explore a set of values in data dis- plays and in lists with the aim of sum- marising all of the values with a sin- gle number
			• organise values in order and find the middle number (median)
			• decide if the median is the best rep- resentative number for the centre of data set; justify and discuss
Calculating the median	1	Calculating the median	 organise values in order and find the middle number (median)
		Mean	
Understanding the mean	1	Understanding the mean	• explore a set of values in data dis- plays and in lists with the aim of sum- marising all of the values with a sin- gle number
			• calculate the mean for a small set of data that would produce a whole number

Learning Journey	Steps	Content	Details
			• use the mean to describe the shape of the data set across its range of val- ues, using charts, tables, and graphs (eg, 'The data values fall mainly into two groups on both sides of the mean.'; 'The set of data is not spread out evenly around the mean.')
			• decide if the mean is the best rep- resentative number for the centre of the data set; justify and discuss
Calculating the mean	1	Calculating the mean	 calculate the mean for a small set of data
	C	comparing measures of central tend	lency
Comparing measures of center and variation	1	Comparing measures of central tendency and spread across data sets and data displays	• compare similarities and differ- ences between two related sets of data, using a variety of strategies (eg, by representing the data using tally charts, stem-and-leaf plots, double bar graphs, or broken-line graphs; by determining measures of central ten- dency [ie, mean, median, and mode]; by describing the shape of a data set across its range of values).

Probability and chance			
		Investigating chance experiment	ts
Learning Journey	Steps	Content	Details
Investigating chance experiments	1	Investigating equally likely out- comes of chance experiments	• recognise that outcomes are de- scribed as 'equally likely' when any 1 outcome has the same chance of oc- curring as any other outcome
			• list all possible outcomes (table, list, tree diagram) in chance experiments where each outcome is equally likely to occur
			• use the term 'probability' to de- scribe the numerical value that rep- resents the likelihood of an outcome of a chance experiment
			• represent probabilities of outcomes of chance experiments using frac- tions
			• determine the likelihood of win- ning simple games by considering the number of possible outcomes
	2	Ordering chance outcomes in a probabilities range from 0 to 1	• establish that the sum of the proba- bilities of the outcomes of any chance experiment is equal to 1
			• understand that the probability ranges cannot be less than 0 and greater than 1
			 order commonly used chance words on an interval from 0 ('impos- sible') to 1 ('certain')

Learning Journey	Steps	Content	Details
			• describe events that are impossible and events that are certain as having a probability of 0 or 1 respectively
			• describe the likelihood of a variety of events as being more or less than a half (or 0.5) and order the events on an interval
	3	Describing the chances of sim- ple events occurring using famil- iar language and numeric bench- marks	• create, order, describe and explain the likelihood of simple events using the language of probability and numeric benchmarks of 0, $\frac{1}{2}$ and 1

Part IV **Grade 6**

15 Number

Number and place value			
		Integers	
Learning Journey	Steps	Content	Details
Investigating integers	1	Investigating integers	• recognise the location of negative whole numbers in relation to zero and place them on a number line
			• use the term 'integers' to describe positive and negative whole numbers and zero
			• investigate negative whole num- bers and the number patterns cre- ated when counting backwards on a calculator
			 recognise that negative whole numbers can result from subtraction
	2	Interpreting integers in context	• use a model to interpret intervals across zero (in context)
		Prime and composite numbers	
Prime and composite	1	Introducing prime and composite	• establish and define prime numbers
numbers		numbers	• establish and define composite numbers
			• know and recall all prime numbers up to 19
	2	Identifying prime and composite numbers	• determine whether a number is prime, composite or neither
			• explain whether a whole number is prime, composite or neither by find- ing the number of factors, eg '13 has two factors (1 and 13) and therefore is prime', '21 has more than two fac- tors (1, 3, 7, 21) and therefore is com- posite', '1 is neither prime nor com- posite as it has only one factor, itself'
	1	Square and cube numbers	
Square numbers	1	Introducing square numbers	• establish and define the concept of square numbers, including the index notation
			• generate square numbers up to at least 100
			• know and recall square numbers up to and including 100
Cube numbers	1	Introducing cube numbers	• establish and define the concept of cube numbers, including the index notation
			• generate cube numbers up to at least 125
			• know and recall cube numbers up to and including 125

Learning Journey	Steps	Content	Details
	2	Describing cube numbers	• model cube numbers and record each number group in numerical and diagrammatic form
			• explain how cube numbers are cre- ated
			• explore cube numbers using cubes, grid paper or digital technologies
			• recognise and explain the relation- ship between the name 'cube' num- ber and the way the pattern of num- bers is created
Comparing square and cube numbers	1	Comparing square and cube numbers using inequality sym- bols	 compare square and cube numbers using inequality symbols (<, >, =), eg, 3 cubed [?] 4 squared
		Number sequences	
Continuing and creating number sequences	1	Continuing and creating se- quences involving whole num- bers, fractions and decimals	• describe the rule used to create the sequence
			• continue and create number patterns, with and without the use of digital technologies, using whole numbers, fractions and decimals, eg $\frac{1}{4}$, $\frac{1}{8}$, 1/16, or 1.25, 2.5, 5
			• describe how number patterns have been created and how they can be continued
			• create simple shape patterns using concrete materials
			• find missing terms in a number se- quence
		Introducing absolute value	
Introducing absolute value	1	Introducing absolute value	• understand the absolute value of a rational number as its distance from 0 on the number line
			• interpret absolute value as magni- tude for a positive or negative quan- tity in a real-world situation, eg for an account balance of -3 dollars, write - 3 = 3 to describe the size of the debt in dollars
			• distinguish comparisons of abso- lute value from statements about or- der. For example, recognise that an account balance less than -30 dol- lars represents a debt greater than 30 dollars

Addition and subtraction			
Addition and subtraction word problems			
Learning Journey	Steps	Content	Details
Addition and subtraction word problems	1	Solving addition word problems involving numbers of any size	• select and apply efficient mental strategies to solve word problems
			• select and apply efficient written strategies to solve word problems

Learning Journey	Steps	Content	Details
			• use a calculator to solve word prob- lems
			• interpret words that indicate the re- quired operation
			• justify the choice of strategy for a given calculation
	2	Solving subtraction word prob- lems involving decimals to hun- dredths (inclusive)	• select and apply efficient mental strategies to solve word problems
			• select and apply efficient written strategies to solve word problems
	3		• use a calculator to solve word prob- lems
			• interpret words that indicate the re- quired operation
			• justify the choice of strategy for a given calculation
		Solving word problems requiring both addition and subtraction in- volving numbers of any size	 select and apply efficient mental strategies to solve word problems
			• select and apply efficient written strategies to solve word problems
			• justify the use digital technologies to solve word problems
			• interpret words that indicate the re- quired operation/s
			 justify the choice of strategy for a given calculation

Multiplication and division			
Multiplication - efficient strategies			
Learning Journey	Steps	Content	Details
Multiply up to 4 digits -	1	Selecting efficient strategies to	 apply mental strategies
efficient strategies		multiply whole numbers of up to 4 digits by 1- and 2-digit numbers	 apply efficient use of formal algo- rithms
			 use digital technologies
			 estimate solutions to problems and check to justify solutions
		Multiplying - expanded algorithr	n
Multiply to a 4-digit number: expanded al- gorithm	1	Multiplying 4-digit numbers by 2-digit numbers using the con- tracted algorithm, without re- arouping (regrouping only when	• multiply the ones, then the tens, then the hundreds and then the thou- sands, without regrouping
		adding the partial products)	
		Multiplying - contracted algorith	m
Multiply to a 4-digit number: contracted algorithm	1	Multiplying 4-digit numbers by 2-digit numbers using the con- tracted algorithm	• multiply the ones, then the tens, then the hundreds and then the thou- sands, with and without regrouping
			 use inverse operations or digital technologies to check solutions
		Division - efficient strategies	
Division of up to 4 digits	1	Selecting efficient strategies to di-	 apply mental strategies
- efficient strategies		vide whole numbers of up to 4 digits by a 1-digit divisor	 apply efficient use of formal algo- rithms

Learning Journey	Steps	Content	Details
			 use digital technologies
			• estimate solutions to problems and check to justify solutions
		Division - area model	
Dividing up to 4-digits by 1 digit - area model	1	Dividing up to 4-digit numbers by 1-digit divisors using factorising (the distributive law) with models	• solve division problems by splitting factors, eg 125 ÷ 5 as (100 ÷ 5) + (25 ÷ 5) using models
		for support	• illustrate and explain the calcula- tion using equations, rectangular ar- rays and/or area models
		Division - extended method	
2-digits - extended method	1	digit divisor using the extended algorithm, no remainders or zeros in answers	 apply the written algorithm to di- vide a 3-digit number by a 2-digit number, without remainders and without zeros in the answer
Dividing 4-digits by 2-digits - extended method	1	Dividing a 4-digit number by a 2- digit divisor using the extended algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 4-digit number by a 2-digit number, without remainders and without zeros in the answer
		Division - contracted method	
Dividing 3-digits by 2-digits - contracted method	1	Dividing a 3-digit number by a 2- digit divisor using the contracted algorithm, no remainders or zeros in answers	• apply the written algorithm to di- vide a 3-digit number by a 2-digit number, without remainders and without zeros in the answer
Dividing 4-digits by 2-digits - contracted method	1	Dividing up to a 4-digit number by a 2-digit divisor using the con- tracted algorithm, no remainders or zeroes in the answer	• apply the written algorithm to di- vide up to a 4-digit number by a 2- digit number
	2	Dividing up to a 4-digit number by a 2-digit divisor using the con- tracted algorithm, with remain- ders but without zeros in answers	• apply the written algorithm to di- vide up to a 4-digit number by a 2- digit number, with remainders and without zeros in the answer
	3	Dividing up to a 4-digit number by a 2-digit divisor using the con- tracted algorithm, with and with- out remainders and zeros in an- swers	• apply the written algorithm to di- vide up to a 4-digit number by a 2- digit number, with and without re- mainders and zeros in the answer
		Dividing using known facts	
Dividing using known facts	1	Dividing using known facts	• solve division problems using known division facts and multiplica- tive relationships, eg 81 divided by 3 must have a quotient that is 3 times the size of 81 divided by 9 so 81 divided by 3 = 27
			• explain and justify the use of the strategy
		Division - using factors	
Using factors to divide	1	Dividing up to 4-digit numbers by 1-digit divisors using factorising (the distributive law)	 solve division problems by splitting factors, eg 125 ÷ 5 as (100 ÷ 5) + (25 ÷ 5)
			 explain and justify the use of the strategy

Learning Journey	Steps	Content	Details
Dividing 4-digit numbers using factors	1	Dividing up to 4-digit numbers by 2-digit multiples of 10 divisors us- ing factors with models	• solve division problems by splitting factors, eg, 540 ÷ 20 as 540 ÷ 10 ÷ 2 using models
			• illustrate and explain the calcula- tion using equations, rectangular ar- rays and/or area models
		Divisibility tests	
Divisibility tests for di- viding by 2	1	Introducing divisibility tests for di- viding by 2	• determine that a number is divisible by 2 if it is an even number, ie the last digit is 0, 2, 4, 6 or 8
			• apply divisibility test to find multiples of 2
Divisibility tests for di- viding by 3	1	Introducing divisibility tests for di- viding by 3	• determine that a number is divisi- ble by 3 if the sum of its digits can be divided by 3
			• apply divisibility test to find multiples of 3
Divisibility tests for di- viding by 4	1	Introducing divisibility tests for di- viding by 4	• determine that a number is divisible by 4 if the last 2 digits can be divided by 4
			• apply divisibility test to find multiples of 4
Divisibility tests for di- viding by 5	1	Introducing divisibility tests for di- viding by 5	• determine that a number is divisible by 5 if the last digit is 0 or 5
			• apply divisibility test to find multiples of 5
Divisibility tests for di- viding by 6	1	Introducing divisibility tests for di- viding by 6	• determine that a number is divisible by 6 if it is divisible by both 2 and 3, ie it is even and the sum of the digits can be divided by 3
			• apply divisibility test to find multiples of 6
Divisibility tests for di- viding by 8	1	Introducing divisibility tests for di- viding by 8	• determine that a number is divisible by 8 if the last 3 digits can be divided by 8
			• apply divisibility test to find multi- ples of 8
Divisibility tests for di- viding by 9	1	Introducing divisibility tests for di- viding by 9	• determine that a number is divisible by 9 if the sum of the digits can be divided by 9
			• apply divisibility test to find multiples of 9
Divisibility tests for di- viding by 10	1	Introducing divisibility tests for di- viding by 10	• determine that a number is divisible by 10 if the last digit is 0
			• apply divisibility test to find multiples of 10
		Multiply and divide using multiple	es
Multiplying by multiples of 10, 100, 1000	1	Multiplying any numbers by 10, 100, 1000 and their multiples	• use mental strategies to multiply by 10, 100, 1000 and their multiples
		Using mental strategies to multi- ply 1-digit and 2-digit numbers by multiples of 10 000	• use mental strategies to multiply 1- digit and 2-digit numbers by multi- ples of 10 000

Learning Journey	Steps	Content	Details
Dividing by multiples of 10, 100, 1000	1	Dividing any numbers by 10, 100, 1000 and their multiples	• use mental strategies to divide by 10, 100, 1000 and their multiples
	1	Problem solving: multiplication/divi	sion
Solving multiplication and division word prob- lems	1	Solving word problems involving multiplication and division	 use appropriate language to com- pare quantities, eg 'twice as much', 'half as much'
			 use a table or similar organiser to record methods used to solve prob- lems
	I	Estimating quotients	
Rounding to estimate	1	Rounding to estimate quotients	 estimate quotients using rounding
		Order of operations	
Order of operations (add/subtract)	1	Introducing order of operations involving addition and subtrac- tion	 solve number sentences involving addition and subtraction
Order of operations (multiply/divide)	1	Introducing order of operations involving multiplication and divi- sion	 solve number sentences involving multiplication and division
Order of operations (add/subtract/multiply/divi	de) ¹	Introducing order of operations involving all 4 operations	• solve number sentences involving all 4 operations
Order of operations in- volving grouping sym- bols	1	Introducing order of operations involving grouping symbols	• explore the use of brackets and the order of operations in number sentences
			• use the term 'operations' to de- scribe collectively the processes of addition, subtraction, multiplication and division
			• recognise that the grouping sym- bols () and [] are used in number sentences to indicate operations that must be performed first
			• perform calculations involving grouping symbols without the use of digital technologies
Applying order of opera- tions (grouping symbols)	1	Applying order of operations for mixed operations and grouping symbols	• apply the order of operations to per- form calculations involving mixed op- erations and grouping symbols
			• investigate whether different digital technologies apply the order of oper- ations
			 recognise when grouping symbols are not necessary
	2	Introducing order of operations involving multiple grouping sym- bols	• explore the use of multiple brackets and the order of operations in num- ber sentences
			• recognise that the grouping sym- bols () and [] are used in number sentences to indicate operations that must be performed first
			• perform calculations involving grouping symbols without the use of digital technologies

Fractions			
Learning Journey	Steps	Understanding fractions	Details
Compare and order frac- tions (same numerator)	1	Comparing and ordering proper fractions with the same numer- ators but different denominators	 compare and order proper fractions using a benchmark fraction for sup- port, eg half or quarter
		(denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100)	• compare and order fractions using the relationship between the size of the denominator and the size of the parts
			 record comparisons using >, < or =
			• recognise that comparisons are only valid when the 2 fractions refer to the same whole
Compare and order frac- tions	1	Comparing and ordering proper fractions with different numera- tors and denominators (denomi-	• compare and order proper fractions using a benchmark fraction for sup- port, eg half or quarter
		nators of 2, 3, 4, 5, 6, 8, 10, 12 and 100)	• record comparisons using >, < or =
		100,	• recognise that comparisons are only valid when the 2 fractions refer to the same whole
Equivalent fractions (re- lated denominators)	1	Recognising and finding equiva- lent simple fractions with related denominators using multiplicative thinking (denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100)	• develop mental strategies for gen- erating equivalent fractions, such as multiplying or dividing the numera- tor and the denominator by the same number
			• explain or demonstrate why 2 frac- tions are or are not equivalent
			 apply knowledge of equivalent fractions to convert between units of measurement
		Simplifying fractions	
Simplify fractions using factors	1	Using common factors to simplify proper fractions to their simplest form	• determine a common factor of the numerator and denominator of a fractions and use to find an equiva- lent fraction. Repeat until the fraction is reduced to its simplest form
			• write a fraction in its simplest form using the highest common factor
			• know that a fraction is reduced to its simplest form when the only com- mon factor of the numerator and de- nominator is 1
Adding fractions		Adding fractions	
related denominators	1	lated denominators and answers	 add proper fractions where the de- nominators are related
		less than 1 whole	• model and represent strategies, in- cluding using diagrams and written representations
			• use knowledge of equivalence to simplify answers when adding fractions
	2	Adding simple fractions with re- lated denominators	• add fractions where the denomina- tors are related

Learning Journey	Steps	Content	Details
			• use knowledge of equivalence to simplify answers when adding fractions
			• where the answer is greater than 1 convert the fraction to a mixed nu- meral
		Subtracting fractions	
Subtracting fractions with related denomina-	1	Subtracting proper fractions with related denominators and an-	• subtract proper fractions where the denominators are related
tors		swers less than 1 whole	 model and represent strategies, in- cluding using diagrams and written representations
			 use knowledge of equivalence to simplify answers when subtracting fractions
	2	Subtracting simple fractions with related denominators	• subtract fractions where the de- nominators are related
			• use knowledge of equivalence to simplify answers when subtracting fractions
			• where the answer is greater than 1 convert the fraction to a mixed nu- meral
		Adding and subtracting fraction	S
Adding and subtracting fractions	1	Adding and subtracting simple proper fractions in which 1 de- nominator is a multiple of another (denominators 2, 3, 4, 5, 6, 7, 8, 10, 12, 100)	• add and subtract proper fractions where 1 denominator is the same as, or a multiple of, the other
			• use knowledge of equivalence to simplify answers when adding and subtracting fractions
	2	Adding and subtracting proper fractions with related denomina- tors and answers less than 1 whole	• add and subtract proper fractions where the denominators are related
			 model and represent strategies, in- cluding using diagrams and written representations
			 use knowledge of equivalence to simplify answers when adding and subtracting fractions
		Mixed numbers	
Add and subtract frac- tions and mixed num- bers	1	Adding fractions, including mixed numerals, with related denomina- tors	• add fractions, including mixed nu- merals, where the denominators are related
			• convert an answer that is an improper fraction to a mixed numeral
			• use knowledge of equivalence to simplify answers when adding fractions
			• recognise that improper fractions may sometimes make calculations involving mixed numerals easier
Subtract fractions (in- cluding mixed numbers)	1	Subtracting fractions, including mixed numerals, with related de- nominators	• subtract fractions, including mixed numerals, where the denominators are related

Learning Journey	Steps	Content	Details
			• convert an answer that is an im- proper fraction to a mixed numeral
			• use knowledge of equivalence to simplify answers when subtracting fractions
			• recognise that improper fractions may sometimes make calculations involving mixed numerals easier
Mixed addition and sub- traction	1	Adding and subtracting fractions including mixed numerals, with	• add and subtract fractions where the denominators are related
		related denominators	 use knowledge of equivalence to simplify answers when adding and subtracting fractions
			• where the answer is greater than 1 convert the fraction to a mixed nu- meral
		Adding fractions and mixed numb	ers
Adding mixed numbers: unrelated denominators	1	Adding fractions and mixed nu- merals with unrelated denomina- tors	• add fractions, including mixed nu- merals, where the denominators are unrelated by finding common de- nominators
			• model and represent strategies, in- cluding using diagrams and written representations
			• convert an answer that is an improper fraction to a mixed numeral
			• use knowledge of equivalence to simplify answers when adding fractions
			• recognise that improper fractions may sometimes make calculations involving mixed numerals easier
	S	ubtracting fractions and mixed nur	nbers
Subtracting mixed num- bers: unrelated denomi- nators	1	Subtracting fractions and mixed numerals with unrelated denom- inators	• subtract fractions, including mixed numerals, where the denominators are unrelated by finding common de- nominators
			• model and represent strategies, in- cluding using diagrams and written representations
			• convert an answer that is an im- proper fraction to a mixed numeral
			• use knowledge of equivalence to simplify answers when subtracting fractions
			 recognise that improper fractions may sometimes make calculations involving mixed numerals easier
	A	dd & subtract fractions & mixed nu	mbers
Adding and subtracting fractions and mixed numbers	1	Adding and subtracting fractions and mixed numerals with unre- lated denominators	 add and subtract fractions, includ- ing mixed numerals, where the de- nominators are unrelated by finding common denominators

Learning Journey	Steps	Content	Details
			• model and represent strategies, in- cluding using diagrams and written representations
			• convert an answer that is an im- proper fraction to a mixed numeral
			• use knowledge of equivalence to simplify answers when adding and subtracting fractions
			 recognise that improper fractions may sometimes make calculations involving mixed numerals easier
		Multiply fractions by whole numb	ers
Multiply fractions by whole numbers using models	1	Multiplying unit fractions by whole numbers using models and diagrams	• apply and extend previous under- standings of multiplication to multi- ply a unit fraction by a whole number
			• use repeated addition to represent and multiply unit fractions by whole numbers, eg $1/5 \times 3 = 1/5 + 1/5 + 1/5 = 3/5$
			• develop a rule for multiplying unit fractions by whole numbers, eg mul- tiply the numerator by the whole number
			• solve word problems involving mul- tiplication of unit fractions by whole numbers, including area and length problems
Multiply proper fractions by whole numbers	1	Multiplying proper fractions by whole numbers using models and diagrams	• apply and extend previous under- standings of multiplication to multi- ply a fraction by a whole number sup- ported by models and/or diagrams, eg $2/5 \times 3 = 2/5 + 2/5 + 2/5 = 6/5 = 1$ 1/5
			• use repeated addition to multiply simple fractions by whole numbers, eg $2/5 \times 3 = 2/5 + 2/5 + 2/5 = 6/5 = 1$ 1/5
			• develop a rule for multiplying simple fractions by whole numbers, eg $2/5 \times 3 = 2 \times 3/5 = 6/5 = 11/5$
			• solve word problems involving mul- tiplication of fractions by whole num- bers, including area and length prob- lems
Multiplying a fraction by a whole number	1	Multiplying proper or improper fractions by whole numbers using models and diagrams	• apply and extend previous under- standings of multiplication to multi- ply a fraction by a whole number sup- ported by models and/or diagrams, eg $2/5 \times 3 = 2/5 + 2/5 + 2/5 = 6/5 = 1$ 1/5
Learning Journey	Steps	Content	Details
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			 apply and extend previous understandings of multiplication to multiply an improper fraction by a whole number supported by models and/or diagrams, eg 6/5 × 3 = 6/5 + 6/5 + 6/5 = 18/5 = 3 3/5 develop a rule for multiplying fractions by whole numbers eg multiply the numerator by the whole number
			tiplication of fractions by whole num- bers, including area and length prob- lems
Multiply mixed numbers by integers	1	Multiplying mixed numerals by whole numbers using models and diagrams	• convert the mixed numeral to an improper fraction and then multiply by a whole number supported by models and/or diagrams, eg 1 and $2/3 \times 6$ as $5/3 \times 6 = 30/3$ or 10
			• solve word problems involving mul- tiplication of fractions by whole num- bers, including area and length prob- lems
		Solving word problems with fraction	ons
Word problems using fractions & mixed num- bers	1	Solving word problems involv- ing fractions and mixed numerals with the related denominators	• solve word problems involving the addition and subtraction of fractions where 1 denominator is the same as, or a multiple of, the other
	2	Solving word problems involv- ing fractions and mixed numerals with the unrelated denominators	• solve word problems involving the addition and subtraction of fractions with unrelated denominators
	3	Solving word problems involving non-unit fractions	• find the whole given the non-unit fraction of a set
			• solve word problems in different contexts, eg measurement
			• solve word problems involving frac- tions with different denominators eg 2/5 of the children have blue eyes, 2/6 have green eyes, if there are 30 chil- dren altogether how many children have brown eyes?
	4	Solving word problems involving fractions of a collection including mixed numerals, proper and im- proper fractions	 solve word problems involving a fraction of a collection/quantity
Word problems: multiply fractions by whole num- bers	1	Solving word problems involv- ing multiplication of fractions by whole numbers using models and equations	• solve word problems involving mul- tiplication of fractions by whole num- bers using models
		Using fractions as operators	
Using fractions as oper- ators	1	Using fractions as operators	 link understanding of fractions of amounts and multiplying fractions to using fractions as operators use knowledge of commutativity

Learning Journey	Steps	Content	Details
		Interpreting fractions as division	n
Interpreting fractions as division	1	Interpreting fractions as division	• interpret a fraction as division of the numerator by the denominator (no decimals)
			• solve word problems involving divi- sion of whole numbers, using models to represent the problem, eg 3 pizzas shared equally among 4 people
Fractions: multiples of unit fractions			
Fractions: multiples of unit fractions	1	Representing a fraction a/b as a x 1/b	• represent a fraction a/b as a x 1/b

Decimals				
		Decimal compliments to 1		
Learning Journey	Steps	Content	Details	
Investigating decimal complements of 1	1	Investigating decimal comple- ments of 1	• use addition and subtraction to ex- plore decimal complements of 1, eg 0.83 + 0.17 = 1	
		Rounding decimals		
Rounding decimals to any place	1	Rounding decimals to any place	 use place value understanding to round decimals to any place 	
		Adding decimals		
Adding decimals up to 3 decimal places	1	Adding decimals to 3 decimal places using mental strategies	• select and apply efficient mental strategies to solve addition problems, including compensation, bridging to 1, using place value	
			 record strategies using numbers, models and diagrams 	
			• relate decimals to fractions to aid mental strategies	
			• solve word problems using mental strategies, including problems involv- ing measurement and money	
Adding decimals using written method	1	Adding decimals to 3 decimal places using a written method	 use a standard algorithm to add decimals with the same number of decimal places 	
			• use a standard algorithm to add decimals with a different number of decimal places	
			• use estimation and rounding to check the reasonableness of answers when adding decimals	
Adding decimals using digital technologies	1	Adding decimals using digital technologies	• add decimals using digital tech- nologies	
			• use estimation and rounding to check the reasonableness of answers when adding decimals	
			• interpret a calculator display in the context of the problem, eg 2.6 means \$2.60	
			• solve word problems involving the addition of decimals, including those involving money and measurement	

Learning Journey	Steps	Content	Details
		Subtracting decimals	
Subtracting decimals using mental strategies	1	Subtracting decimals using men- tal strategies	• select and apply efficient mental strategies to solve subtraction prob- lems, including compensation, bridg- ing to 1, using place value
			 record strategies using numbers, models and diagrams
			 relate decimals to fractions to aid mental strategies
			 solve word problems using mental strategies, including problems involv- ing measurement and money
Subtracting decimals using digital technolo-	1	Subtracting decimals using digital technologies	 subtract decimals using digital technologies
gies			• use estimation and rounding to check the reasonableness of answers when subtracting decimals
			 interpret a calculator display in the context of the problem, eg 2.6 means \$2.60
			• solve word problems involving the subtraction of decimals, including those involving money and measurement
Subtracting decimals using written method	1	Subtracting decimals to 3 decimal places using written method	• use a standard algorithm to sub- tract decimals with the same number of decimal places
			• use a standard algorithm to sub- tract decimals with a different num- ber of decimal places
			• use estimation and rounding to check the reasonableness of answers when subtracting decimals
Subtracting decimals in the same place value	1	Subtracting decimals up to 3 dec- imal places with the same num- ber of decimal places using place value partitioning and models	• apply place value partitioning to subtract decimals and whole num- bers eg, 6.4 – 5.2 as 6 – 5 and 4 tenths + 2 tenths
		Multiplying decimals	
Multiplying decimals and whole numbers	1	Multiplying hundredths and whole numbers using mental strategies	 use efficient mental strategies to multiply hundredths and whole num- bers
Multiplying decimals up to 3 decimal places	1	Multiplying decimals of up to 3 decimal places using mental strategies	• use mental strategies to multiply simple decimals by single-digit numbers, eg 3.5 x 2
			• multiply decimals of up to 3 deci- mal places by whole numbers of up to 2 digits, with and without the use of digital technologies, eg 'I mea- sured 3 desks. Each desk was 1.25 m in length, so the total length is $3 \times 1.25 = 3.75$ m'

Learning Journey	Steps	Content	Details
			• solve word problems involving the multiplication of decimals, including those involving money
			• use estimation and rounding to check the reasonableness of answers when multiplying decimals
Multiplying decimals us- ing written method	1	Multiplying decimals using writ- ten method	 multiply decimals up to thou- sandths using a standard algorithm
	N	ultiplying decimals by 10, 100 and	1000
Multiplying decimals by powers of 10	1	Multiplying decimals by 10	• use PV equipment to multiply deci- mals by 10
			• recognise that the digits move one place to the left
			• use zero as a place holder
Multiplying decimals by powers of 100	1	Multiplying decimals by 100	• recognise that the digits move 2 places to the left
			• use zero as a place holder
			• use PV equipment to multiply deci- mals by 100
Multiplying decimals by powers of 1000	1	Multiplying decimals by 1000	• recognise that the digits move three places to the left
			• use zero as a place holder
			• use PV equipment to multiply deci- mals by 1000
Multiplying decimals by powers of 10, 100, 1000	1	Multiplying decimals by 10, 100, 1000	• multiply decimals by 10, 100, 1000
		Multiplicative relationships	
Multiplicative relation- ships with decimals	1	Relating multiplicative relation- ships using decimals	• describe multiplicative relation- ships between quantities by using decimals, eg 'I have 1.5 time as many plums as you'
		Dividing decimals	
Divide decimals by inte- gers	1	Dividing whole numbers and dec- imals of up to 2 decimal places us- ing mental strategies	• divide decimals by a one-digit whole number where the re- sult is a terminating decimal, eg 5.25 ÷ 5 = 1.05
			• solve word problems involving the division of decimals, including those involving money
			• use estimation and rounding to check the reasonableness of answers when dividing decimals
		Dividing decimals using written me	thod
Dividing decimals using written method	1	Dividing decimals using written method	• divide decimals up to thousandths using a standard algorithm
		Dividing decimals by 10, 100, 100	00
Dividing decimals by 10	1	Dividing decimals by 10	• recognise that the digits move one place to the right
			• use zero as a place holder
			• use PV equipment to divide deci- mals by 10

Learning Journey	Steps	Content	Details
Dividing decimals by 100	1	Dividing decimals by 100	• recognise that the digits move 2 places to the right
			• use zero as a place holder
			• use PV equipment to divide deci- mals by 100
Dividing decimals by 1000	1	Dividing decimals by 1000	 recognise that the digits move three places to the right
			• use zero as a place holder
			• use PV equipment to divide deci- mals by 1000
Dividing decimals by 10, 100, 1000	1	Dividing decimals by 10, 100, 1000	• divide decimals by 10, 100, 1000
		Dividing decimals by powers	
Dividing decimals by powers of 10	1	Dividing decimals by powers of 10	• use PV equipment to divide deci- mals by 10
			 recognise that the digits move one place to the right
			 use zero as a place holder
Dividing decimals by powers of 100	1	Dividing decimals by powers of 100	• use PV equipment to divide deci- mals by 100
			 recognise that the digits move two places to the right
			• use zero as a place holder
Dividing decimals by powers of 1000	1	Dividing decimals by powers of 1000	• use PV equipment to divide deci- mals by 100
			• recognise that the digits move three places to the right
			 use zero as a place holder
	1	Solve multiplication/division proble	ems
Word problems: multi- plying and dividing dec-	1	Solving decimal word problems involving multiplying and dividing	 solve decimal word problems in- volving multiplying
imals			 solve decimal word problems in- volving dividing
Using division to solve problems	1	Applying understanding of divi- sion to solve problems involving up to 2 decimal places using mod- els	• apply understanding of division to solve problems involving up to 2 dec- imal places using models, eg, bar model
		Connecting fractions and decima	ls
Connecting fractions and decimals	1	Connecting decimals to equiva- lent fractions where the denomi- nator is 10, 100 or 1000	• connect decimals to equivalent fractions
Converting fractions and decimals	1	Converting simple fractions to decimals using place value mod- els and short division	• convert simple fractions into deci- mals using short division and knowl- edge of tens, eg, 5/8 =5.0 ÷ 8 or 50 tenths divided by 8 = 0.625

Percentages			
Percentages			
Learning Journey	Steps	Content	Details
Introducing percentages	1	Introducing percentages	 recognise that the symbol % means 'percent'

Learning Journey	Steps	Content	Details
			• understand that 'percent' relates to 'number of parts per one hundred'
			• write fractions with a denominator of 100 as percentages and vice versa
			 model percentages with concrete materials/ drawings, eg using 10x10 grid
			 identify real-life contexts where percentages are used
			• find a percent of a quantity as a rate per 100, eg 30% of a quantity means 30/100 times the quantity
Representing fractions, percentages and deci-	1	Representing simple fractions as percentages	• represent simple fractions as per- centages and vice versa
mals			 model percentages with concrete materials/ drawings, eg using 10x10 grid
	2	Representing common fractions as percentages	• represent common fractions as per- centages and vice versa
			 model percentages with concrete materials/ drawings, eg using 10x10 grid
	3	Representing percentages and decimals	• write decimals (< 1) to 2 decimal places as percentages
			 model percentages and decimals using diagrams, eg number line or 100 grid
			 write decimals as percentages and vice versa
Converting common fractions into percent- ages	1	Converting common fractions to percentages using mental strate- gies	• use mental strategies to convert fractions to percentages
	2	Converting common fractions to percentages using a calculator	 use calculator strategies to convert fractions to percentages
		Calculating percentages	
Calculating simple per- centages	1	Calculating simple percentages	• estimate 0%, 1%, 10%, 25%, 50% and 100% of an amount including examples in context (exclude dis- counts), explain estimation
			• model 10%, 25% and 50% of an amount
			• calculate 10%, 25% and 50% of an amount including examples in context (exclude discounts)
Calculating simple per- centage discounts	1	Calculating simple percentage discounts	• investigate and calculate percent- age discounts of 10%, 25% and 50% on sale items
			• estimate quantities using bench- marks of 10%, 25% and 50%
			 calculate sale price by subtract- ing the proportion from the original amount

Learning Journey	Steps	Content	Details
			 calculate common percentages of quantities
			• choose the most appropriate equiv- alent form of a percentage to aid cal- culation
Calculating percentages of amounts	1	Calculating simple percentages of quantities	\bullet equate 10% to 1/10, 25% to $\frac{1}{4}$ and 50% to $\frac{1}{2}$
			• use mental strategies to estimate discounts of 10%, 25% and 50%,
			• calculate the sale price of an item after a discount of 10%, 25% and 50%, recording the strategy and re- sult
	2	Using 50%, 10% and 1% to men- tally calculate amounts	• use 50%, 10%, and 1% as strategies to mentally calculate amounts
		Fractions, decimals and percentage	ges
Percentages as fractions and decimals	1	Investigating the relationships between fractions, decimals and percentages	• investigate using concrete materi- als, drawings and calculators, the re- lationships between decimals, per- centages and fractions with denom- inators of 2, 4, 5, 10, 20, 25, 50 and 100
			• record relationships between dec- imals, percentages and fractions (with denominators 2, 4, 5, 10, 20, 25, 50, 100)
			• demonstrate understanding using symbolic representation
Equivalence in fractions, decimals and percent- ages	1	Representing common equivalent fractions, decimals and percentages	• recall the relationships between decimals, percentages and fractions with denominators of 2, 4, 5, 10, 20, 25, 50 and 100
			• recognise fractions, decimals and percentages as different representa- tions of the same value
			• interpret and explain the use of fractions, decimals and percentages in everyday contexts
			 relate equivalence to proportion
	2	Representing equivalent frac- tions, decimals and percentages	• write percentages as fractions in their simplest form
			• write fractions with denominators that are factors of 100 as percent- ages by multiplying the numerator and denominator by a common value
			• write fractions with denominators that are not factors of 100 as per- centages by writing as a decimal first, eg using short division, then x100 to write as a percentage
			• write percentages as decimals and vice versa
			• represent equivalent fractions, dec- imals and percentages

Learning Journey	Steps	Content	Details
			• select and justify the most appro- priate representation of a quantity — fraction, decimal, percentage
Solving problems relat- ing to equivalence	1	Solving problems relating to per- centage and decimal equivalence	• solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, 1/5, 2/5, 4/5 and those fractions with a denominator or multiple of 10 or 25

16 Measurement

Length				
		Converting length		
Learning Journey	Steps	Content	Details	
Converting metric units of length	1	Converting between common metric units of length up to 2	• understand the meaning of metric prefixes, eg kilo-, centi- and milli-	
		decimal places	 convert between metres and kilo- metres 	
			• convert between millimetres, cen- timetres and metres to compare lengths and distances	
			• relate the multiplicative relation- ship between centimetres and me- tres, metres and kilometres	
			• explain and use the relationship be- tween the size of a unit and the num- ber of units needed to assist in deter- mining whether multiplication or divi- sion is required when converting be- tween units	
	2	Converting between common metric units of length up to 3	• understand the meaning of metric prefixes, eg kilo-, centi- and milli-	
		decimal places	• convert between metres and kilo- metres	
				• convert between millimetres, cen- timetres and metres to compare lengths and distances
				• relate the multiplicative relation- ship between centimetres and me- tres, metres and kilometres
			• explain and use the relationship be- tween the size of a unit and the num- ber of units needed to assist in deter- mining whether multiplication or divi- sion is required when converting be- tween units	
		Solving length problems		
One-step problems in- volving length	1	Solving one-step problems in- volving length	• solve a variety of one-step prob- lems involving length and perimeter, including different units of length	
			• sketch or construct a rectangle, triangle or parallelogram given the perimeter and/or area	
Two-step problems in- volving length	1	Solving two-step problems in- volving length	 solve a variety of two-step prob- lems involving length and perimeter, including different units of length 	
		Recording speed in kmph		
Introducing speed in metric units	1	Introducing speed using metric units	• recognise symbols used to record speed in kilometres per hour	
			• solve simple problems involving speed	

Area			
Learning Journey	Stope	Area of triangles and rectangles	S Details
Area of triangles	1	Calculating area of a right-angled triangle without a formula	 establish that the area of a right- angled triangle is half the area of a rectangle with the same base and perpendicular height
			• calculate the area of right-angled triangles using the relationship that the area is half the area of a rectangle with the same base and perpendicu- lar height
			• calculate the area of right-angled triangles where all three side lengths are given, using the relationship that the area is half the area of a rectangle with the same base and perpendicu- lar height
	2	Calculating area of any triangle	• establish that the area of any triangle is Area of trian- gle = $\frac{1}{2}$ × base × perpendicular height, including triangles in which the perpendicular height meets the base within the length of the base and also triangles in which the per- pendicular height (altitude) meets the base outside the length of the base
			• calculate the area of triangles where more dimensions than are necessary are given, using the rela- tionship that the area is half the area of a rectangle with the same base and perpendicular height
Area of rectangles	1	Applying the formula for the area of a rectangle	• develop the formula for the area of a rectangle, $A = I \times w$ (also $A = Iw$)
			• apply the formula for area of a rect- angle to find the area of rectangles given 2 side lengths measured in the same or different units
			• apply the formula for area of a rect- angle to find the area of compos- ite rectilinear figures, such as an L- shape, U-shape
			• apply the formula to real life con- texts
		Area of rectangles (mixed units	
Formula for area of rect- angles (mixed units)	1	Applying the formula for the area of a rectangle (metric and cus- tomary units)	• apply the formula for area of a rectangle to find the area of rectangles given 2 side lengths measured in the same units (metric and customary units)
			• tind the width or length of a rectan- gle given the area and the measure of the other side

Learning Journey	Steps	Content	Details
Word problems: area of a rectangle (mixed units)	1	Solving word problems involving the area of a rectangle (metric and customary units)	• solve word problems involving the area of a rectangle (metric and cus-tomary units)
		Area of triangles (mixed units)	
Finding the area of a tri- angle	1	Calculating area of any triangle (metric and customary units)	• calculate the area of triangles where more dimensions than are necessary are given, using the rela- tionship that the area is half the area of a rectangle with the same base and perpendicular height (metric and customary units)
	2	Calculating area of a right-angled triangle without a formula (metric and customary units)	• establish that the area of a right- angled triangle is half the area of a rectangle with the same base and perpendicular height (metric and customary units)
			• calculate the area of right-angled triangles using the relationship that the area is half the area of a rectan- gle with the same base and perpen- dicular height (metric and customary units)
			• calculate the area of right-angled triangles where all 3 side lengths are given, using the relationship that the area is half the area of a rectan- gle with the same base and perpen- dicular height (metric and customary units)
	3	Calculating area of any triangle (metric and customary units)	• establish that the area of any triangle is area of trian- gle = $\frac{1}{2}$ × base × perpendicular height, including triangles in which the perpendicular height meets the base within the length of the base and also triangles in which the per- pendicular height (altitude) meets the base outside the length of the base (metric and customary units)

Volume and capacity				
Capacity with decimals				
Learning Journey	Steps	Content	Details	
Converting metric units of capacity (inc deci- mals)	1	Converting between common metric units of capacity including fractions and decimals (to 2	• convert between millilitres and litres using fractions eg 1 and 1/10 litres as 1100 mL or 3.8 l as 3800 mL	
		decimal places)	• explain and use the relationship be- tween the size of a unit and the num- ber of units needed to assist in deter- mining whether multiplication or divi- sion is required when converting be- tween units	

Learning Journey	Steps	Content	Details
	2	Converting between common metric units of capacity (to 3 decimal places)	 convert between millilitres and litres
			• explain and use the relationship be- tween the size of a unit and the num- ber of units needed to assist in deter- mining whether multiplication or divi- sion is required when converting be- tween units
Connecting decimals to the metric system	1	Connecting decimal representa- tions to the metric systems (to 3 decimal places)	• recognise the equivalence of whole-number and decimal rep- resentations of measurements of capacities
			• interpret decimal notation for vol- umes and capacities
			 record volume and capacity using decimal notation to 3 decimal places
		Volume of rectangular prisms	
Volume of rectangular prisms	1	1 Calculating the volumes of rect- angular prisms using additive and multiplicative strategies	• describe rectangular prisms in terms of layers
			• use repeated addition to find the volumes of rectangular prisms
			• establish the relationship between the number of cubes in 1 layer, the number of layers, and the volume of a rectangular prism
			• explain that the volume of a rectan- gular prism can be found by finding the number of cubes in 1 layer and multiplying by the number of layers
			• record, using words, the method for finding the volumes of rectangu- lar prisms
			• calculate the volumes of rectan- gular prisms in cubic centimetres and cubic metres including calculat- ing the volume given the net for the shape
			 record calculations used to find the volumes of rectangular prisms
		Using the formula for volume	
Applying volume for- mulas for rectangular prisms	1	Using the formulas $V = I \times w$ x h and $V = b \times h$ to find vol- umes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems (metric and customary units)	• use the formulas $V = I \times w \times h$ and $V = b \times h$ to find volumes of right rectangular prisms with frac- tional edge lengths in the context of solving real-world and mathemati- cal problems (metric and customary units)

Learning Journey	Steps	Content	Details
Solve problems: volume of a rectangular prism	1	Solve problems involving the vol- ume of a rectangular prism	• apply the formulas $V = I \times w \times h$ and $V = b \times h$ to find volumes of right rect- angular prisms with whole-number edge lengths in the context of solving real-world and mathematical prob- lems
Volume of composite rectangular prisms	1	Find the volume of composite rectangular prisms using additive strategies	• find volumes of solid figures com- posed of two non-overlapping right rectangular prisms by adding the vol- umes of the non-overlapping parts
		Working with cubes and cuboid	s
Calculating & compar- ing volumes of cubes & cuboids	1	Calculating, estimating and com- paring volumes of cubes and cuboids	 estimate, calculate and compare volumes of cubes and prisms using standard units including mm³ and km³

Mass				
		Mass (metric)		
Learning Journey	Steps	Content	Details	
Decimal representation in mass	1	Understanding decimal represen- tation of metric measurements of	• connect measurements of mass with their decimal representations	
		mass	• recognise the equivalence of whole number and decimal representations, eg 3 kg 250 g = 3.25 kg	
			 record mass using decimal notation of up to 3 decimal places 	
			 refer to SI units of mass 	
Converting between standard metric units of	1	Converting between standard metric units of mass to 1 decimal	• understand the meaning of metric prefixes, eg kilo-, centi-, milli-	
mass		place	 convert between grams and kilo- grams and vice versa 	
			 convert between kilograms and tonnes and vice versa 	
			 convert among grams, kilograms and tonnes 	
	2	Converting between standard metric units of mass up to 2 decimal places	• understand the meaning of metric prefixes, eg kilo-, centi-, milli-	
			 convert between grams and kilo- grams and vice versa 	
			 convert between kilograms and tonnes and vice versa 	
			 convert among grams, kilograms and tonnes 	
			 solve problems using different units of mass 	
		Converting between standard metric units of mass up to 3	• understand the meaning of metric prefixes, eg kilo-, centi-, milli-	
		decimal places	 convert between grams and kilo- grams and vice versa 	
			 convert between kilograms and tonnes and vice versa 	
			 convert among grams, kilograms and tonnes 	

Learning Journey	Steps	Content	Details	
			 solve problems using different units of mass 	
Solving multi-step problems: mass				
Solving multi-step prob- lems involving mass	1	Solving multi-step problems in- volving mass	• solve a variety of problems involv- ing mass, including same and differ- ent units of mass	

Time					
Timetables					
Learning Journey	Steps	Content		Details	
Using 12 and 24 hour timetables	1	Using timetables 24-hour time)	(12-hour and	• use real-world timetables (12-hour and 24-hour time) to determine ar- rival time given the desired depar- ture time, including when the depar- ture time is not listed exactly in the timetable	
				• use real-world timetables (12-hour and 24-hour time) to determine de- parture time given the desired arrival time, including when the arrival time is not listed exactly in the timetable	
				• use real-world timetables (12-hour and 24-hour time) to determine the duration of a journey	
				 solve real-world problems involving timetables 	

17 Geometry

2D shape				
Introducing parts of a circle				
Learning Journey	Steps	Content	Details	
Radius, diameter and	1	Introducing parts of a circle: cen-	• identify and name parts of circles	
circumference		tre, radius, diameter and circum- ference	• create a circle by finding points that are all the same distance from a fixed point	

Angles					
	Exploring angles				
Learning Journey	Steps	Content	Details		
Adjacent angles	1	Introducing adjacent angles	• define adjacent angles as angles that share a common arm and a com- mon vertex and recognise the larger angle created		
			• recognise adjacent angles as addi- tive and calculate the size of an un- known angle given the whole and its other parts and find the size of the whole given the size of the parts		
	2	Exploring adjacent angles that form a right angle	• explore the relationship between angles that form a right angle		
			• calculate an unknown angle within a right angle given the other parts		
	3	Exploring adjacent angles that form a straight angle	• explore the relationship between angles that form a straight angle		
			• calculate an unknown angle within a straight angle given the other parts		
	4	Exploring adjacent angles that form an angle of revolution	• explore the relationship between angles that form an angle of revolution		
			• calculate an unknown angle within an angle of revolution given the other parts		
Vertically opposite an- gles	1	Exploring vertically opposite an- gles	• explore the relationship between angles formed when 2 straight lines intersect and identify these as 'verti- cally opposite angles'		
			• use the equality of vertically op- posite angles to find the size of un- known angles in diagrams		
			• use the equality of vertically op- posite angles to find the size of un- known angles represented by vari- ables in diagrams		
			• test congruence by overlaying shapes		

Rotation and translation of shapes			
		Patterns in shape	
Learning Journey	Steps	Content	Details
Patterns from rotation	1	1 Creating patterns that result from rotating shapes	• extend and create repeating pat- terns that result from rotations, through investigation using a variety of tools, eg pattern blocks, dynamic geometry software, geoboards, dot paper
			 describe the pattern
			• predict the next term/s in the pat- tern
Patterns from transla- tions	1	Creating patterns that result from translations	• extend and create repeating pat- terns that result from translations through investigation using a variety of tools, eg pattern blocks, dynamic geometry software, dot paper
			• describe the pattern
			• predict the next term/s in the pat- tern
			• complete a table of values for a number pattern made using shapes and describe the pattern in words

Position, movement and direction				
Cartesian plane (first quadrant)				
Learning Journey	Steps	Content	Details	
Solving problems in the first quadrant	1	Representing and solving prob- lems using coordinates in the first quadrant of the Cartesian plane	• represent real-world and mathe- matical problems by graphing points in the first quadrant of the coordinate plane	
			• interpret coordinate values in the context of the situation	
Reflection with coordi- nates	1	Identifying 2D reflections on a grid or coordinate plane (first quadrant only)	 identify 2D shapes in diagrams and on coordinate planes 	
	2	Plotting reflections of shapes and points on a coordinate plane	 plot reflections of shapes and points on a coordinate plane 	
	3	Recording the positions of re- flected points using coordinates	• record the positions of reflected points using coordinates eg, (3,5)	
Calculating & compar- ing volumes of cubes & cuboids	1	Investigating translations in the first quadrant	• identify the one-step transforma- tion used to move a shape from 1 po- sition to another	
			• follow instructions to position a shape on a grid	
			• identify the instructions required to translate a shape on a grid using suitable language such as left/right, up/down, number of squares moved	
	2	Translating coordinates in the first quadrant	• record the new position of a coordi- nate after translation	
			• describe the translation of coordi- nates	

Learning Journey	Steps	Content	Details			
	Cartesian plane (four auadrants)					
Introducing the coordi- nate system	1	Introducing the Cartesian coordi- nate system	• recognise that the number plane consists of a horizontal axis (x-axis) and a vertical axis (y-axis), creating 4 quadrants			
			 recognise that the horizontal axis and the vertical axis meet at right an- gles 			
			• identify the point of intersection of the 2 axes as the origin, having coor- dinates (0, 0)			
Locating points on the Cartesian/Coordinate plane	1	Locating points on the Cartesian plane	• plot and label points, given coordi- nates, in all 4 quadrants of the num- ber plane			
			• identify and label each quadrant on a number plane			
			 plot a sequence of coordinates to create a picture 			
			 identify and record the coordinates of given points in all 4 quadrants of the number plane 			
			• recognise that the order of coor- dinates is important when locating points on the number plane, eg (2, 3) is a location different from (3, 2)			
	2	Finding the missing coordinate of a figure	• find the missing coordinate of a fig- ure with a coordinate plane			
			• find the missing coordinate of a fig- ure coordinates only			
Graphing coordinates across the x- and y-axis	1	Recognising that when 2 ordered pairs differ only by signs, the loca- tions of the points are reflections across 1 or both axes	• recognise that when 2 ordered pairs differ only by signs, the locations of the points are reflections across 1 or both axes			
Drawing polygons in the coordinate plane	1	Drawing polygons in the coordi- nate plane given coordinates for the vertices	• draw polygons in the coordinate plane given coordinates for the vertices			
Solving problems by graphing in the 4 quad- rants	1	Solving real-world and mathe- matical problems by graphing points in all 4 quadrants of the co- ordinate plane	• solve real-world and mathematical problems by graphing points in all 4 quadrants of the coordinate plane			
Find the distance be- tween 2 points, absolute value	1	Using coordinates and absolute value to find distances between points with the same first coordi- nate or the same second coordi- nate	• use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate			

18 Operations and Algebraic Thinking

Expressions & Equations			
		Equivalent expressions	
Learning Journey	Steps	Content	Details
ldentifying equivalent expressions	1	Introducing algebraic expressions	• Identify parts of an expression us- ing mathematical terms (sum, term, product, factor, quotient, coefficient)
		Identifying equivalent expres- sions	 identify equivalent expressions
		Use simple formulae/formulas	
Find a rule - one step	1	Interpreting and creating number patterns involving 1 operation in the term-to-term rule	 complete number patterns involv- ing one operation describe the pattern in a variety
			of ways and record descriptions in words, eg 'It goes up by ones, start- ing from four'
			• interpret explanations written by peers and teachers that accurately describe number patterns
			• use the rule to predict the next few terms and predict whether a particu- lar value will be in the pattern
			• find missing terms in the number sequence
		Generating numerical patterns	
Comparing numerical patterns	1	Comparing 2 pattern rules	• generate 2 numerical patterns us- ing 2 given rules
			• identify apparent relationships be- tween corresponding terms, eg given the rules 'Add 3' and 'Add 6' and the starting number 0, generate terms in the resulting sequences, and ob- serve that the terms in 1 sequence are twice the corresponding terms in the other sequence
			• explain thinking informally
	2	Creating and graphing ordered pairs from 2 patterns	• create and graph ordered pairs from 2 patterns
Interpreting and creat- ing a number pattern ta-	1	Interpreting and creating a table of values for number patterns in-	• complete a table of values resulting from patterns involving 2 operations
טוכ			 describe the pattern in a variety of ways and record descriptions in words
			• interpret explanations written by peers and teachers that accurately describe shape and number patterns
			• use the rule to predict the next few terms and predict whether a particu- lar value will be in the pattern

Learning Journey	Steps	Content	Details
Forming expressions	1	Developing and representing the general term of a linear growing pattern	• develop and represent the general term of a linear growing pattern, us- ing algebraic expressions involving 1 operation, eg the general term for the sequence 4, 5, 6, 7, can be written algebraically as $n + 3$, where n rep- resents the term number; the general term for the sequence 5, 10, 15, 20, can be written algebraically as 5n, where n represents the term number

19 Ratio and Proportion

Ratio and proportion				
Percent of a quantity				
Learning Journey	Steps	Content	Details	
Expressing rates as a percent	1	Expressing simple ratios as a per- centage	• find a percent of a quantity as a rate per 100, eg 30% of a quantity means 30/100 times the quantity	
Solving percent prob- lems: finding the whole	1	Solving problems involving find- ing the whole, given a part and the percent	• solve problems involving finding the whole, given a part and the percent	

20 Statistics and data

Data			
		Pie charts/sector graphs/circle gra	phs
Learning Journey	Steps	Content	Details
Read and interpret pie charts	1	Interpreting sector/pie charts	• interpret sector/pie charts using proportional reasoning and percent- ages
			• find the whole from the parts and vice versa
			 ask and answer comparison ques- tions; make conclusions; identify data values
Constructing pie charts	1	Constructing pie charts	• construct pie charts using propor- tional reasoning and represent sec- tors as percentages
			• use knowledge of protractors and angles to construct pie charts; in- clude a suitable title, labels and key
			• ask and answer questions related to data in the pie chart; draw conclusions
Solving problems with pie charts	1	Solving problems using sector/pie charts	• use proportional reasoning and the 4 operations to solve problems re- lated to data in a sector/pie chart
Pie charts with percent- ages	1	Representing and reading data in a sector/pie chart with simple per- centages	• represent data in a sector/pie chart segmented into tenths using given or collected data with 20 responses; in- clude a key, suitable category labels and appropriate title
			• relate and represent data in a sec- tor/pie chart as percentages
			• interpret data in a sector/pie chart ; ask and answer questions related to the data in the display; draw conclu- sions
		Histograms	
Reading and interpret- ing data in a histogram	1	Reading and interpreting data in a histogram	 read and interpret data in a his- togram
		Box-and-whisker plots	
Reading and interpret- ing box-and-whisker plots	1	Introducing and interpreting box- and-whisker plots	• become familiar with the structure of a box-and-whisker plot includ- ing minimum and maximum values, range, median, interquartile range, upper and lower quartiles
			 identify measures of centre, spread and variation in a box-and-whisker plot
		Interpreting secondary data	
Interpreting secondary data	1	Interpreting secondary data	• interpret data representations found in digital media and in factual texts
			• interpret tables and graphs from the media and online sources

Learning Journey	Steps	Content	Details
			• identify and describe conclusions that can be drawn from a particular representation of data
Data displays (mixed)			
Constructing data dis- plays	1	Constructing data displays for numerical data using dot plots, histograms and box-and-whisker plots	• display numerical data in plots on a number line, including dot plots, his-tograms, and box-and-whisker plots

Statistical variability				
Statistical questions				
Learning Journey	Steps	Content	Details	
Evaluating statistical questions	1	Evaluating statistical questions	• recognise a statistical question as one that anticipates variability in the data related to the question and ac- counts for it in the answers	
		Shape of data distribution		
Introducing the shape of data distribution	1	Introducing the shape of data dis- tribution	• understand that a set of data col- lected to answer a statistical ques- tion has a distribution	
			 describe the centre, spread, and overall shape of a data distribution 	
		Measures of center/centre and vario	ition	
Introducing the upper and lower quartiles	1	Introducing the upper and lower quartiles	 identify the range and median in a set of data 	
			• use the range and median to iden- tify the upper and lower quartiles; un- derstand that the 25% of values sit beneath the lower quartile and 25% of values sit above the upper quartile	
			• compare upper and lower quartiles in sets of data; relate data distribu- tion shapes to the upper and lower quartiles	
Introducing interquartile range	1	Introducing interquartile range	• identify the range, median and up- per and lower quartiles in a set of data	
			• identify the interquartile range in a set of data; understand that 50% of the data values sit within the in- terquartile range	
			• compare the interquartile range in sets of data; relate data distribution shapes to the interquartile range	
		Summarising numerical data		
Formulating a summary	1	Summarising a set of data	 report the number of observations 	
for numerical data	-		• describe the nature of the attribute being measured, how it was mea- sured and the unit of measurement	
			• give measure of centre and spread; describe overall pattern; describe major deviations from the pattern with reference to the context in which the data was gathered	

Learning Journey	Steps	Content	Details
			• relate the choice of measure of cen- tre and variability to the shape of the data distribution and the context in which the data was gathered
		Reporting observations	
Reporting observations in a data display	1	Reporting the number of observa- tions in a data display	• report the number of observations in a dot plot
			 report the number of observations in a histogram
			• report the number of observations in a box-and-whisker plot
		Attributes of data	
Describing attributes of data in data displays	1	Describing attributes of data, in- cluding how they were measured, in different data displays	• describe attributes of data, includ- ing how they were measured, in dif- ferent data displays
		<u>Calculate measure of centre & varia</u>	ation
Calculating the mean absolute deviation	1	Finding the mean absolute varia- tion	• identify the absolute value of each piece of data in comparison to the mean and enter the absolute value into a table
			• find the mean absolute deviation by totalling all the absolute values and dividing by the number of values
Identifying skewed and symmetrical sets of data	1	Identifying skewed and symmet- rical sets of data	 identify skewed and symmetri- cal sets of data

Probability and chance			
Understanding chance experiments			
Learning Journey	Steps	Content	Details
Frequency in chance ex- periments	1	Comparing observed frequencies with expected frequencies in chance experiments	• use the term 'frequency' to describe the number of times a particular out- come occurs in a chance experiment
			• distinguish between the 'frequency' of an outcome and the 'probability' of an outcome in a chance experiment
			• record and compare the expected frequencies of outcomes of chance experiments with observed frequen- cies, including where the outcomes are not equally likely
			• explain why observed frequencies of outcomes in chance experiments may differ from expected frequencies
			• recognise that some random gen- erators have outcomes that are not equally likely and discuss the effect on expected outcomes
Fairness in chance ex- periments	1	Exploring fair and unfair chance experiments	 discuss the 'fairness' of simple games involving chance

Learning Journey	Steps	Content	Details
			• design a spinner or label a dice so that a particular outcome is more likely than another and discuss the fairness of the outcomes
			• list all possible outcomes using ta- bles, lists and tree diagrams (with or without digital technology) where outcomes are not equally likely to oc- cur
			• record results of chance experi- ments using appropriate methods, eg tally chart, line plot, bar graph
Probability as a fraction, decimal or percent	1	Describing probability of a sin- gle event using fractions, deci- mals and percentages	• list the outcomes for chance exper- iments where the outcomes are not equally likely to occur and assign ex- perimental probabilities to the out- comes using fractions
			• use knowledge of equivalent frac- tions, decimals and percentages to assign probabilities to the likelihood of outcomes within concrete exam- ples
			• explain real-life events in the con- text of probabilities
			• use the terminology 'theoretical probability' and/ or 'relative fre- quency' as the value given by the formula: number of times named outcome(s) did happen / total num- ber of trials
		Using digital technologies to con- duct chance experiments	• assign expected probabilities to outcomes in chance experiments with random generators, including digital simulators, and compare the expected probabilities with the observed probabilities after both small and large numbers of trials
			• determine and discuss the differ- ences between the expected proba- bilities and the observed probabilities after both small and large numbers of trials
			• explain what happens to the ob- served probabilities as the number of trials increases



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