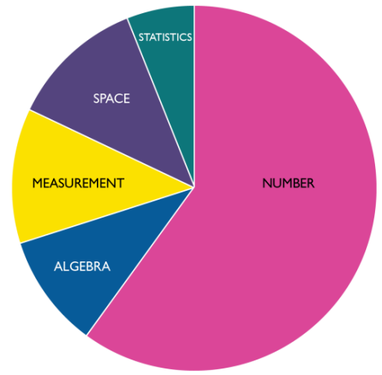
NUMBER/ALGEBRA CURRICULUM MAP | PREP

TRUST THE COUNT | PLACE VALUE | ADDITIVE THINKING | MULTIPLICATIVE THINKING | PARTITIONING | PROPORTIONAL REASONING | GENERALISATION

ACHIEVEMENT STANDARD

By the end of Foundation Year, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10. They copy and continue repeating patterns.



TERM 1

COUNTING

- Matches number words and symbols to collections. AC9MFN01
- Knows number naming sequence. AC9MFN01
- Counts by ones using one to one correspondence to determine how many objects there are in a collection. AC9MFN03
- Knows that the last number counted is the number in the collection. AC9MFN03
- Knows that if we count the same collection again we will get the same answer. AC9MFN03

SUBITISING

- Matches number words and symbols to collections. AC9MFN02
- Perceptually subitises for collections from 1 to 5 objects. AC9MFN02
- Develops a variety of strong mental visual images for each number 1 to 5. AC9MFN02

COMPARING AND ORDERING

- Uses comparative language when comparing two collections e.g. bigger than, smaller than and also more or less for collections. AC9MFN03

NUMBERS BEFORE AND AFTER

- Understands language of before and after e.g. when items are placed in a row which item is before and after. AC9MFN01

TERM 2

SUBITISING

- Conceptually subitises (breaks collections into parts) for collections from 0 to 10 objects (and beyond 10) AC9MFN04

SUBITISING

- Develops a variety of strong mental visual images for each number 6 to 10 and beyond. AC9MFN04

NUMBERS BEFORE AND AFTER

- Identifies one more or one less than a number, e.g. 4 is one less than 5, 9 is one more than 8. AC9MFN01

TERM 3

PARTS / WHOLE KNOWLEDGE

- Has part-part-whole knowledge of EACH whole number from 0-10 AC9MFN04

NUMBERS BEFORE AND AFTER

- Understands order in number sequences, 4 is the number before 5 AC9MFN01

PART/WHOLE KNOWLEDGE

- Demonstrates a sense of numbers beyond 10. E.g. fourteen is the same as ten and four more. AC9MFN01 AC9MFN03

REPRESENTING

- Use concrete materials, pictures, words to describe real life situations involving addition and subtraction. AC9MFN05

TERM 4

COUNTING / SKIP COUNTING

- Counts larger collections by twos, fives or tens (recognises twos, fives and tens as countable units. AC9MFN06

MULTIPLICATIVE PARTITIONING

- Equal sharing recognises equal shares of halves in real world situations. AC9MFN06

PART/WHOLE KNOWLEDGE

- Demonstrates a sense of numbers beyond 10. E.g. fourteen is the same as ten and four more. AC9MFN01 AC9MFN03

REPRESENTING

- Use concrete materials, pictures, words to describe real life situations involving addition and subtraction. AC9MFN05

PATTERNING

- Recognise, copy and continue repeating patterns represented in different ways. AC9MFA01

ASSESSMENT:

TERM 1
MODERATION TASK: THINK BOARD COUNTING
PAT TESTING

TERM 2
MODERATION TASK: 7 CRABS
1.1 SUBITISING TOOL

TERM 3
MODERATION: TASK: TEN IN THE BED
1.1 SUBITISING TOOL

TERM 4
MODERATION TASK: ICY POLE STICKS
PAT TESTING
1.2 MENTAL OBJECT TOOL 1.3 SHARING TOOL

VOCABULARY

- Numbers - one - twenty
- Ordinal Numbers first - fifth
- Add
- Add on
- Altogether
- Answer
- Backwards & forwards
- Before & after
- Classify
- Count
- Counting on and back
- Difference
- Equal
- Few, fewer, fewest
- First & last
- Less & more
- Match
- Model
- Next
- Numbers
- Order
- Ones
- Partition (part-part-whole)
- Pattern
- Repeat
- Subitise
- Tens
- Zero

MENTAL COMP STRATEGIES

- Using part-part-whole knowledge
- Friends of ten (after other numbers)
- Counting on/Counting back
- Doubling
- Commutativity

**Reference: www.drpaulswan.com.au (Vocabulary)*

BENCHMARKS

BURNIE COUNTS

CURRICULUM MAP K-10

Big Idea	B-4	K	P	1	2	3	4	5	6	7	8	9	10	10A
Trusting the Count														
Place Value														
Additive to Multiplicative Thinking														
Partitioning														
Proportional Reasoning														
Generalisation														

**Adapted from Professor Dianne Siemon*

TRUST THE COUNT

Year 1 By the end of Term 1

PLACE VALUE

Year 1 1- and 2-digit numbers (partitioning)
Recognise, represent and order to at least 120
Quantify sets of numbers to at least 120

Year 2 Recognise, order and represent to at least 1000
Partition, rename and regroup 2- and 3- digit numbers

Year 3 Recognise, represent and order beyond 10 000
Partition, rearrange and regroup 2- and 3- digit numbers

Year 4 Name and represent tenths and hundredths

Year 5 Write and order numbers greater than one
Interpret, compare and order more than two decimal places

ADDITIVE THINKING

Prep Represent practical addition and subtraction experiences

Year 1 Add and subtract numbers with in 20. Addition and subtraction strategies for 1-digit numbers

Year 2 Addition and subtraction strategies for 1- and 2- digit numbers

Year 3 Addition and subtraction strategies for 2- and 3-digit numbers

Year 4 Efficient strategies and appropriate digital tools to solve problems involving addition and subtraction

Year 5 Efficient strategies and appropriate digital tools to solve problems involving addition and subtraction

Year 6 Addition and subtraction strategies for decimals to at least hundredths

MULTIPLICATIVE THINKING

Prep Practical situations of equal sharing

Year 1 Partition collections into equal groups
Skip count by twos, fives and tens

Year 2 Multiply and divide 1-digit numbers (repeated addition, equal grouping, arrays)
Multiplication facts for twos and related division facts (doubling and halving)

Year 3 Single digit multiplication and division (number sentences, diagrams, arrays)
Multiplication facts twos, threes, fours, fives and tens

Year 4 Proficiency and recall of multiplication facts.
Multiplies and powers of 10
Efficient strategies of multiplication and division to solve problems (no remainders)

Year 5 Proficiency with multiplication facts to multiply large numbers by 1- and 2- digit numbers and divide by 1-digit numbers
Unknown values in numerical equations using multiplication and division
Patterns in factors and multiples
Solve problems involving division (with remainders)

Year 6 Prime, composite and square numbers
Multiply and divide with decimals by multiples of powers of 10

Year7 Perfect square numbers and square roots
Product of powers of prime numbers (exponent notation)

Year 8 Exponent laws with positive integers and zero exponent
4 operations with integers

PARTITIONING

Prior to Year 1 Partition into equal groups

Year 2 Identify and represent ½, ¼, 1/8. Part – whole relationship

Year 3 Represent unit fractions and multiples of these (1/2, 1/3, 1/4, 1/5 and 1/10)
Combine fractions with same denominators to complete whole

Year 4 Recognise equivalent fractions
Connect fraction and decimal notation
Count and represent fractions (mixed numerals)

Year 5 Order and represent fractions with same or related denominators
Add and subtract fractions with same or related denominators
Connect common percentages with fractions and decimals

Year 6 Solve problems involving finding fraction, percentage or decimal of quantity
Problems involving rational numbers and percentages
Order common fractions on same number line (equivalence)
Add and subtract fractions with same denominator

PROPORTIONAL REASONING

Year 5 Compare and order fractions with same or related denominators (mixed numerals)
Recognise 100% as a whole
Connect familiar %, fractions and decimals
Addition and subtraction of fractions with same or related denominators

Year 6 Equivalent fractions on same number line (halves, thirds, quarters)
Addition and subtraction of equivalent fractions
Find familiar fraction, decimal and % of quantity

Year 7 Equivalent representations of rational numbers
4 operations including fractions, decimals and %
Solve problems involving ratio

Year 8 4 operations with rational numbers

GENERALISATION

Year 7 Use variables in rules and substitute numbers for variables and then calculate.
Solve two step linear equations with the variable on one side of the equals sign using backtracking
Simplify expressions by collecting like terms involving addition and subtraction
Simplify expressions involving one operation of multiplication or division by a number including index laws.

Year 8 Solve linear equations with the variable on both sides of the equals sign using backtracking, experimenting and checking, and graphical techniques.
Verify solutions using substitution
Expand algebraic expressions with a single term multiplied by a binomial.
Factorise using numerical common factors.
Simplify algebraic expressions involving addition, subtraction, multiplication and division.

Year 9 Solve linear equations.
Solve simple non-linear relations by backtracking, experimenting and checking, and graphical techniques
Recognise the impact of the gradient on the appearance of a linear graph
Expand algebraic expressions with a binomial multiplied by a binomial and simplify
Use index laws involving positive integral indices and the zero index to simplify algebraic expressions

Year 10 Solve linear equations involving simple algebraic fractions with numerical denominators.
Solve linear inequalities and simultaneous equations
Solve simple quadratic equations.
Explore the connection between algebraic and graphical representations of simple quadratics and exponentials
Factorise monic quadratic expressions and use common algebraic factors
Simplify expressions involving algebraic fractions with numerical denominators using all four operations