***Scope & Sequence Gr 3/4***

***Number: Counting – Verbal and Physical***

***Grade Three***

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| ***Related Vocabulary:*** zero, count by 3, count by 4, more or less, halves, half, start at, order, create, before, after, bigger, smaller, pattern, match, odd, even, multiples, continue, keep going, conjecture |
| ***Before this level:***  Count forwards and backwards to 1000  Skip count by 2s, 5s, 10s and 4s  Sequence and order to 100  Recognise odd and even numbers up to 100  Recognise, create, correct and continue number patterns to 100 |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Count forwards |  |  |  |  |
| consolidate 0 – 999 and 0 to 1000 |  |  |  |  |
| Count backwards |  |  |  |  |
| consolidate 999 to 0 and 1000 to 0 |  |  |  |  |
| Skip Count |  |  |  |  |
| count by 3s, numbers from zero to 100 |  |  |  |  |
| count by 3s, numbers from multiples of the number to 100 |  |  |  |  |
| count by 10s and 100s to 1000 from multiples |  |  |  |  |
| consolidate and extend counting by 2s, 4s, and 5s |  |  |  |  |
| count by halves |  |  |  |  |
| Apply counting |  |  |  |  |
| sequence and order to 1000 |  |  |  |  |
| recognise, create, correct and continue number patterns to 1000 |  |  |  |  |
| make and test simple conjectures with regard to counting patterns eg. I think the next number will be … because … |  |  |  |  |
| use calculators to explore number patterns |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** create, before, after, bigger, smaller, pattern, match, odd, even, multiples, continue, keep going, conjecture, quarters |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Count forwards |  |  |  |  |
| 0 to 9999 |  |  |  |  |
| 0 to 10 000 |  |  |  |  |
| Count backwards |  |  |  |  |
| 999 to 0 |  |  |  |  |
| 10 000 to 0 |  |  |  |  |
| Skip count |  |  |  |  |
| count by 3s numbers from non-multiples of the number to 100 |  |  |  |  |
| count by 10s and 1000s to 1000 from non-multiples |  |  |  |  |
| consolidate and extend counting by 2s, 4s and 5s |  |  |  |  |
| count by quarters |  |  |  |  |
| Apply counting |  |  |  |  |
| sequence and order to 1000 |  |  |  |  |
| recognise, create, correct and continue number patterns to 1000 |  |  |  |  |
| make and test simple conjectures with regard to counting patterns |  |  |  |  |
| use calculators to explore number patterns |  |  |  |  |

***Number: Place Value***

***Grade Three***

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| ***Related Vocabulary:*** expand thousands, rename, order, smaller, bigger, tenths, hundredths, tens of thousands, ascending, descending, integers |
| ***Before this level:***  Read, make and write three-digit numbers  Compare and order number  Sequence and order to 1000  Round to the nearest 10  Enter and read numbers on a calculator |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Read number (tenths to 1000) |  |  |  |  |
| Make number (construct) |  |  |  |  |
| Write number (numerals and words) |  |  |  |  |
| Expand numbers eg. 399 = 300 + 90 + 9. Also 399 is 39 tens and 9 ones |  |  |  |  |
| Interpret number |  |  |  |  |
| Compare and order number |  |  |  |  |
| Sequence and order numbers to 1000 |  |  |  |  |
| Round to the nearest 10 |  |  |  |  |
| Round to the nearest 100 eg. round money to the nearest dollar |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** thousandths, millions, tens of millions, hundreds of millions, equivalent, halves, thirds, fifths, tenths, quarters, point, decimal point, positive integers, negative integers |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Read, numbers (hundredths to 10 000) |  |  |  |  |
| Make numbers (construct) |  |  |  |  |
| Write number |  |  |  |  |
| Expand numbers eg. 1399 = 1000 + 300 + 90 + 9  Also 1399 is 139 tens and 9 ones or  13 hundreds and nine tens and nine ones etc |  |  |  |  |
| Interpret number |  |  |  |  |
| Compare and order number |  |  |  |  |
| Sequence and order to 10 000 |  |  |  |  |
| Round to nearest 10, 100, 1000 eg. round money to the nearest 5c |  |  |  |  |

***Number: Mental Computation***

***Grade Three***

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| ***Related Vocabulary:*** multiplication, multiply, multiplication tables, division, divide, estimate, round to the nearest… inverse, estimate, check, over estimate, underestimate, is the same as, equals |
| ***Before this level:***  Recognise and use commutative and associative property of addition  Automatically recall addition and subtraction facts up to 20  Count on from the larger number  Derive facts from known facts  Use doubling of numbers to 15 and multiples of 10  Make and test simple conjectures by finding examples, counter-examples and special cases and informally decide whether a conjecture is true  Use a four-function calculator including the use of the constant + function and x key to check the accuracy of mental estimations |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Automatically recall multiplication facts (2s, 5s, 10s tables) and related division facts |  |  |  |  |
| Recognise multiplication and division as inverse operations |  |  |  |  |
| Extend multiplication facts using place-value knowledge  eg. 3 x 6 = 18, 3 x 60 = 180, 30 x 60 = 1800, 3 x 600 = 1800 |  |  |  |  |
| Round to nearest 10 and 100 |  |  |  |  |
| Use estimation to check appropriateness of answers |  |  |  |  |
| Recognise whether estimates are over estimates or under estimates |  |  |  |  |
| Derive facts from known facts eg. 7 x 6 is 6 x 6 and 6 more  or 7 + 10 + 13 = 10 + 7 + 13  = 10 + 20 |  |  |  |  |
| Select and use most appropriate strategies for solving mental computation |  |  |  |  |
| Recognise, create, correct and continue number patterns to 1000 |  |  |  |  |
| Estimate, check and correct, including use of calculator to check mental computations |  |  |  |  |
| Mentally solve simple one-step word problems involving addition, subtraction multiplication or division in real-life situations (eg. money) |  |  |  |  |
| Construct and explain number sentences of equality  eg. 9 plus 3 is the same as 10 plus 2, then 9 plus 3 equals 10 plus 2 |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** round, estimate, check, inverse, appropriateness |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Round to nearest 10, 100 and 1000 |  |  |  |  |
| Use estimation to check appropriateness of answers |  |  |  |  |
| Automatically recall multiplication facts (2s, 3s, 4s, 5s, 10s tables) and related division facts |  |  |  |  |
| Automatically recall multiplication tables up to 10 x 10 |  |  |  |  |
| Recognise and use multiplication and division as inverse operations (transposition) 5 x 3 = 15 and 15 ÷ 3 = 5 |  |  |  |  |
| Extend multiplication and division facts using place-value knowledge |  |  |  |  |
| Derive facts from known multiplication and division facts |  |  |  |  |
| Select and use most appropriate strategies for solving mental computation |  |  |  |  |
| Recognise addition and subtraction as inverse operations |  |  |  |  |
| Test ideas and assumptions |  |  |  |  |
| Construct and explain number sentences of equality using either addition or subtraction eg. 10 minus 8 is the same as 20 minus 28, then 10 minus 8 equals 20 minus 18 |  |  |  |  |
| Recognise, create, correct and continue number patterns to 1000 |  |  |  |  |
| Estimate, check and correct using different approaches including calculators |  |  |  |  |
| Mentally solve simple one-step word problems involving addition, subtraction, multiplication or division in real-life situations eg. money |  |  |  |  |

***Number: Written Computation: Addition***

***Grade Three***

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| ***Related Vocabulary:*** addition, plus, value of, bundle, regroup, number line, columns, units, flats, longs, blocks, estimate, check, equals, bigger than, larger than, more than, smaller than, less than, not equal to |
| ***Before this level:***  Add two or more groups up to 99  Introduce concept of commutativity eg. 2 + 4 = 4 + 2  Estimate, check and correct using a variety of strategies including the calculator  Add one- and two-digit numbers by using counting on strategies  Construct and explain simple number sentences of equality using addition  Make and test simple conjectures (eg. when adding 10 the last number will always remain the same) by finding examples, counter-examples and special cases, and informally decide whether a conjecture is true |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Add two or more groups up to 99 with regrouping |  |  |  |  |
| Use MAB to model addition eg. making bundles of 10s and 100s, multiple tens frames, MAB blocks and stamps (if they can bundle), MAB mats |  |  |  |  |
| Record horizontally and through drawing eg. informal number lines (no gradations), formal number lines, expanded notations |  |  |  |  |
| Use vertical recording with no regrouping (N.B. before introducing formal recording vertical addition with regrouping, students need to be able to use concrete materials) |  |  |  |  |
| Estimate, check and correct |  |  |  |  |
| Construct and explain number sentences of equality  eg. 9 + 3 is the same as 10 + 2, then 9 + 3 = 10 + 2 |  |  |  |  |
| Write and solve one-step word problems using four operations involving real-life contexts such as money |  |  |  |  |
| Use symbols <, >, and ≠ |  |  |  |  |
| Use concept of addition and subtraction as inverse operations |  |  |  |  |
| Use number sense and number facts to regroup or reorder computations  eg. 7 + 10 + 13 = 10 + 7 + 13 = 10 + 20 |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** operation of addition, brackets, create, correct, continue, solve, horizontal, vertical |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Add two or more groups up to 999 with regrouping |  |  |  |  |
| Add decimals up to two places in practical applications such as money |  |  |  |  |
| Make with concrete materials (MAB) |  |  |  |  |
| Record using horizontal and vertical |  |  |  |  |
| Construct and explain number sentences of equality using one process (either addition or subtraction) eg. 10 + 8 = 0 + 18 |  |  |  |  |
| Estimate, check by using different approaches and correct or adjust if necessary |  |  |  |  |
| Write own problems |  |  |  |  |
| Test ideas and assumptions (incidentally) eg. questioning – how? why? |  |  |  |  |
| Write and solve two-step word problems using four operations with real-life applications |  |  |  |  |
| Make up coin and note values and change to $10 |  |  |  |  |
| Use brackets () and symbols >, < and ≠ |  |  |  |  |
| Construct number sentences with missing numbers and solve them |  |  |  |  |
| Add with halves and quarters using concrete materials eg. fraction wall, paper folding, Cuisenaire rods |  |  |  |  |
| Explore further the concept of addition and subtraction as inverse operations |  |  |  |  |
| Use number sense and number facts to regroup or reorder computations  eg. 7 + 10 + 13  = 10 + 7 + 13  = 10 + 20 |  |  |  |  |

***Number: Written Computation: Multiplication***

***Grade Three***

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| ***Related Vocabulary:*** vertical, horizontal, columns, place value, record, estimate, check, arrays, multiples |
| ***Before this level:***  Make and draw groups of … (total less than 100)  Record horizontally  Recognise concept of commutativity and use effectively  Make, draw and record arrays for 10s, 5s, 4s and 2s  Estimate, check and correct  Model and solve simple multiplication problems  Make and test simple conjectures by finding examples, counter-examples and special cases, and informally decide whether a conjecture is true |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Make and draw groups of … (total 100) |  |  |  |  |
| Record horizontally |  |  |  |  |
| Extend understanding of commutativity |  |  |  |  |
| Consolidate arrays for 10s, 5s, 2s and 4s |  |  |  |  |
| Make, draw and record arrays for 3s, 6s, and 8s |  |  |  |  |
| Learn multiplication tables for 3s 6s and 8s |  |  |  |  |
| Estimate, check and correct |  |  |  |  |
| Multiply two-digit by one-digit numbers |  |  |  |  |
| Recognise and use distributive law  eg. 5 x 13 = 5 x (10 +3)  = 5 x 10 + 5 x 3 |  |  |  |  |
| Write and solve one-step problems using the four operations in real-life situations |  |  |  |  |
| Recognise and use symbols <, >, and ≠ |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** vertical, horizontal, columns, place value, record, estimate, check, arrays, multiples |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Make and draw groups of … (at least 100) |  |  |  |  |
| Record horizontally and vertically with carrying two-digit by one-digit numbers |  |  |  |  |
| Extend understanding of commutativity |  |  |  |  |
| Use arrays for 10s, 5s, 2s, 4s, 3s, 6s and 8s |  |  |  |  |
| Make, draw and record arrays for 7s and 9s |  |  |  |  |
| Introduce multiplication tables for 7s and 9s |  |  |  |  |
| Learn all tables up to 10 x 10 |  |  |  |  |
| Use multiplication and division as inverse operations through table facts |  |  |  |  |
| Estimate, check and correct |  |  |  |  |
| Multiply two-digit by one-digit numbers |  |  |  |  |
| Multiply by 10s 100s and multiples of these, completing patterns |  |  |  |  |
| Use distributive law eg. 5 x 13 = 5 x (10 + 3)  5 x 10 + 5 x 3 |  |  |  |  |
| Test ideas and assumptions (incidentally) eg. questioning – how? why? |  |  |  |  |
| Write and solve two-step word problems using four operations with real-life applications |  |  |  |  |
| Use brackets () and consolidate symbols <, >, and ≠ |  |  |  |  |
| Construct number sentences with missing numbers and solve them |  |  |  |  |

***Number: Written Computation: Division***

***Grade Three***

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| ***Related Vocabulary:*** division, divide, share, facts, remainder, how many, tables, groups of, thirds, parts of |
| ***Before this level:***  Recognise division symbol  Record formally (horizontal and informally with and without remainders. Use concrete materials to physically divide (sharing)  Make, draw, explain and solve  Estimate, check and correct  Model and solve simple division problems  Make and test simple conjectures by finding examples, counter-examples and special cases, and informally decide whether a conjecture is true |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Link multiplication to division by known table facts |  |  |  |  |
| Divide a two-digit number by a single-digit number with and without remainders |  |  |  |  |
| Use horizontal recording eg. 24 ÷ 3 = 8 |  |  |  |  |
| Find half, quarter, fifths and tenths of a group of objects eg. find a fifth of 20 |  |  |  |  |
| Find half, quarter, fifths and tenths of an object eg. find a fifth of the cake |  |  |  |  |
| Make, draw, explain and solve |  |  |  |  |
| Use multiplication tables for 3s, 6s, 8s |  |  |  |  |
| Estimate, check and correct |  |  |  |  |
| Write and solve one-step word problems using the four operations in real-life situations |  |  |  |  |
| Recognise and use symbols <, >, and ≠ |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** division, divide, share, facts, remainder, how many, tables, groups of, thirds, parts of |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Divide a three-digit number by a single-digit number with and without remainders |  |  |  |  |
| Use formal recording eg. 3 ) 12 |  |  |  |  |
| Make, draw, explain and solve |  |  |  |  |
| Use multiplication and division as inverse operations through table facts |  |  |  |  |
| Estimate, check and correct |  |  |  |  |
| Test ideas and assumptions (incidentally) eg. questioning – how? why? |  |  |  |  |
| Write and solve two-step word problems using four operations with real-life applications |  |  |  |  |
| Use brackets () and symbols <, >, and ≠ |  |  |  |  |
| Construct number sentences with missing numbers and solve them |  |  |  |  |

***Number: Written Computation: Subtraction***

***Grade Three***

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| ***Related Vocabulary:*** difference, difference between, subtract, regrouping, trading, MAB-units, longs, flats, cubes |
| ***Before this level:***  Use concrete materials to model a subtraction problem to 99. Hide numbers/screened objects  Use ‘count back’ or ‘count back to’ strategies to solve simple subtraction tasks, count on/count on from  Use informal and horizontal recording using subtraction and equals symbol  Estimate, check and correct using a variety of strategies including the calculator  Write, draw an solve simple one-step word problems in a real-life context |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Using concrete materials to model a subtraction problem to 99 with regrouping |  |  |  |  |
| Use MAB blocks to model subtraction with regrouping |  |  |  |  |
| Introduce vertical recording with no regrouping |  |  |  |  |
| Use ‘count back’ or count back to’ or ‘count on’ or ‘count on from’ strategies to solve simple subtraction tasks.  eg. Count back (take away) 11 – 9: 11, 10. 9 8, 7, 6, 5, 4, 3, 2  Count back to: (finding the difference) 11, 10 9 |  |  |  |  |
| Recognise that subtraction is commutative |  |  |  |  |
| Show pictorially |  |  |  |  |
| Record horizontally and through drawing eg. informal number lines (no gradations) formal number lines |  |  |  |  |
| Estimate, check and correct |  |  |  |  |
| Write and solve one-step word problems using four operations involving real-life contexts such as money |  |  |  |  |
| Use symbols <, >, and ≠ |  |  |  |  |
| Use concept of addition and subtraction as inverse operations |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** total, subtraction, take way, difference, regroup, rename, digit, equation, half, quarter, whole, part, order, greater |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Use concrete materials including MAB blocks to model a subtraction problem to 999 with regrouping |  |  |  |  |
| Introduce vertical recording using decomposition method (with one regrouping). When regrouping, check that the value of the number remains that same  eg. 460  - 39 460 is the same as 500 + 50 + 10 |  |  |  |  |
| Recognise that subtraction is not commutative |  |  |  |  |
| Estimate and check |  |  |  |  |
| Construct and explain number sentences of equality using one process (either addition or subtraction) eg. 10 – 8 = 20 - 18 |  |  |  |  |
| Estimate, check by using different approaches, and correct or adjust if necessary |  |  |  |  |
| Write own problems |  |  |  |  |
| Test ideas and assumptions (incidentally) eg. questioning – how? why? |  |  |  |  |
| Write and solve two-step word problems using four operations with real-life applications |  |  |  |  |
| Make up coin and note values and change to $10 |  |  |  |  |
| Use brackets () and symbols <, >, and ≠ |  |  |  |  |
| Construct number sentences with missing numbers and solve them |  |  |  |  |
| Explore the concept of addition and subtraction as inverse operations |  |  |  |  |
| Use number sense and number facts to regroup or reorder computations  eg. 17 + 10 = 7  = 10 + 17 – 7  = 10 + 10 |  |  |  |  |

***Number: Fractions and Decimals***

***Grade Three***

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| ***Related Vocabulary:*** fifths, tenths, fraction wall, number line |
| ***Before this level:***  Recognise that a quarter is part of a whole  Recognise that a quarter is one of four equal parts of a whole  Find half and quarter of a group of items  Find half and quarter of an item or object  Find halves and quarters of regular shapes eg. squares, circles, rectangles |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Count by halves |  |  |  |  |
| Find half, quarter, fifths and tenths of a group of objects eg. find a fifth of 20 |  |  |  |  |
| Find half, quarter, fifths and tenths of an object eg. find a fifth of the cake |  |  |  |  |
| Recognise and show a half, a quarter, a fifth and a tenth of an object or a half, a quarter, a fifth, a tenth of a group of objects |  |  |  |  |
| Find multiple fractional groups of an object or group of objects eg. find ¾ of 8 smarties, find 2/5 of a piece of ribbon |  |  |  |  |
| Use related multiplication facts and skip counting when sharing objects eg. a quarter of 20 is 5 because I know 4 fives are 20, or 4, 8, 12, 20 – that is 5 |  |  |  |  |
| Recognise equivalence incorporating halves, quarters, tenths and fifths eg. using paper folding, fraction walls and number lines |  |  |  |  |
| Given a fraction, then find the whole (single item and group of objects) |  |  |  |  |
| Add and subtract simple fractions with the same denominator using concrete materials |  |  |  |  |
| Read decimal numbers including tenths and hundredths |  |  |  |  |
| Write and resolve word problems using four operations, decimals, money and measurement in real-life situations |  |  |  |  |
| Record decimal computations using tens frames and number lines |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** fractional parts, third, Cuisenaire rods, larger, smaller, greater than >, less than < |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Count by halves and quarters, fifths and tenths |  |  |  |  |
| Add with halves and quarters using concrete materials eg. paper folding, fraction wall, Cuisenaire rods and number lines |  |  |  |  |
| Find fractional parts of a group of objects eg. find one third of a group of 24 children; what is three quarters of a block of chocolate? |  |  |  |  |
| Find fractional parts of an object |  |  |  |  |
| Subtract halves and quarters using concrete materials |  |  |  |  |
| Recognise and show a half, a quarter, a fifth, a tenth of an object or a half, a quarter, a fifth, a tenth of a group of objects |  |  |  |  |
| Compare and order a half, a quarter, a fifth, a tenth (which fraction is larger, which fraction is smaller) |  |  |  |  |
| Given a fraction, find the whole (single item and group of objects) |  |  |  |  |
| Add fractions with common denominators using concrete materials |  |  |  |  |
| Add fractions with related denominators eg. fifths and tenths |  |  |  |  |
| Record addition of fractions |  |  |  |  |
| Subtract fractions with related denominators using concrete materials |  |  |  |  |
| Record subtraction of fractions |  |  |  |  |
| Count by tenths (decimal) |  |  |  |  |
| Add with tenths |  |  |  |  |
| Subtract with decimals to tenths |  |  |  |  |
| Write and solve word problems using four operations, decimals, money and measurement in real-life situations |  |  |  |  |
| Multiply and divide decimal numbers by 10 |  |  |  |  |
| Test ideas and assumptions |  |  |  |  |
| Recognise and use symbols <, >, () and ≠ accurately in all situations |  |  |  |  |

***Measurement: Measurement***

***Grade Three***

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| ***Related Vocabulary:*** litre, millilitre, kilogram, centimetre, mass, weight, thermometer, temperature, pace, gram, linear scale, circular scale, as long as, shorter tan, small, large, 90 degrees is the measure of a right angle |
| ***Before this level:***  Use common measurement language to clearly define attributes  Use common language of measurement to describe temperature  Use the formal units of metre, kilogram, litre, gram  Use formal measuring tools  Estimate, compare and measure length, mass, capacity  Write, draw and solve word problems using addition or subtraction (one-step problems), money and measurement in real-life situations |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Measure and compare using appropriate informal units (eg. handspans, paces, lengths of string) |  |  |  |  |
| Use the formal units (language only) of centimetre, metre, gram, kilogram, litre, ½ litre is 500mL, ½ kg is 500g and temperature etc |  |  |  |  |
| Use formal measuring tools i.e. proper measuring cup, metre ruler, bathroom scales, thermometer |  |  |  |  |
| Read formal scales eg. 1 litre on a jug, increments on a ruler, mass on a scale etc |  |  |  |  |
| Measure area of regular shapes by counting squares |  |  |  |  |
| Estimate, compare and measure accurately, using appropriate tools: length – cm, m; mass – kg; capacity – litre |  |  |  |  |
| Use the language of estimation, comparison and approximation to describe length, capacity and mass in part measures eg. it takes 10 ½ cups to fill a pot, so I think the jug ay fill five or six cups |  |  |  |  |
| Use formal units to make models according to correct measures eg. rule a line 7cm long |  |  |  |  |
| Estimate and measure right angles using informal tools eg. using a square corner (eg. a piece of paper) |  |  |  |  |
| Use different attributes to order objects in different ways eg. containers can be ordered differently according to height or capacity |  |  |  |  |
| Write an solve word problems using four operations (one-step problems), money and measurement in real-life situations |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** mass, capacity, area, temperature, Celsius, degrees, thermometer, perimeter, angles |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Read formal scales |  |  |  |  |
| Estimate and measure area of regular shapes by counting squares on a grid |  |  |  |  |
| Estimate, compare and measure accurately, using appropriate tools:  length: mm, cm, m mass: g, kg capacity: mL, l temperature: degrees Celsius |  |  |  |  |
| Use decimal units related to their real-life experiences: ½ litre is 0.5 litres, ½ kg is 0.5 kg etc of milk, soft drink etc |  |  |  |  |
| Use the language of estimation, comparison and approximation to describe with increasing accuracy length, capacity and mass in part measures |  |  |  |  |
| Use formal units to make models according to correct measures eg. rule a line 7cm long and a 7cm x 5cm shape etc |  |  |  |  |
| Understand concept of perimeter |  |  |  |  |
| Estimate and compare angles in relation to right angles eg. bigger than, smaller than |  |  |  |  |
| Order objects according to a particular attribute eg. order these milk cartons according to height or how much they hold etc |  |  |  |  |
| Write and solve word problems using four operations (two-step problems), money and measurement in real-life situations |  |  |  |  |

***Measurement: Time***

***Grade Three***

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| ***Related Vocabulary:*** fortnight, two week, timetable, schedule, duration of time |
| ***Before this level:***  Read the time on analogue clock – o’clock, half past  Read the time in hours and minutes on a digital clock  Use everyday/formal language to describe elapsed time  Understand duration of time  Read formal calendars  Recognise seconds as a formal unit of time |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Read and write analogue time – o’clock, half past, quarter past and quarter to |  |  |  |  |
| Read and write digital time in hours and minutes |  |  |  |  |
| Describe time using environmental clues eg. the leaves are falling so it must be autumn etc |  |  |  |  |
| Make connections between time spans eg. summer – December to February etc |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** digital, analogue, starting time, finishing time, hours, minutes, timetable, schedule, calendar, elapsed time, more than, less than, about the same as |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Read and write analogue to 5-minute intervals |  |  |  |  |
| Read and write digital time |  |  |  |  |
| Show digital time on an analogue clock and vice versa |  |  |  |  |
| Duration of time; work out how long something takes in hours and minutes, given a start and a finish time (elapsed time) |  |  |  |  |
| Interpret and create simple timetables and schedules |  |  |  |  |
| Locate dates on a calendar and calculate days elapsed between to dates within the same year |  |  |  |  |
| Classify events into those that take less than, more than, or about an hour, half an hour, 5 minutes |  |  |  |  |
| Use formal timers to measure how long things will take eg. a stopwatch |  |  |  |  |

***Chance***

***Grade Three***

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| ***Related Vocabulary:*** outcomes, random, possible outcomes, chance, experiment, test, select, record, equal, same chance, repeated, likely, unlikely |
| ***Before this level:***  Rank familiar situations in order of likelihood  Compare two familiar situations and decide which is more likely to happen  Predict outcomes of chance events |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Identify and record all possible outcomes from simple chance experiments and discuss the results eg. toss two coins and record all possible outcomes eg. head-head, head-tail, tail-head, tail-tail. ‘I got a head and a tail more often than anything else |  |  |  |  |
| Explore the random nature of a repeated experiment eg. ‘If I toss a coin 10 times then repeat the activity tossing the coin another 10 times I am likely to get different results’. |  |  |  |  |
| Identify activities where there is an equal chance of an outcome occurring eg. a spinning board which is half blue and half red; there is an equal chance of the arrow pointing to blue or red. |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** predict, compare, rank, order, likelihood, unequal, fair, unfair, match, equal chance, unequal chance, 3 out of 4, fair chance, possible, impossible, unlikely |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Predict, identify and record all possible outcomes from simple chance experiments, and compare and discuss the results eg. predict all possible outcomes of a die toss, toss the dice 20 times and record or outcomes  Compare, rank and discuss the likelihood of in everyday events eg. games in playground, daily events  Order events according to likelihood of occurrence on a continuum eg.  least likely equally likely most likely  Predict, explore and compare the random nature of repeated experiments  Identify activities where there is an equal and unequal chance of an outcome occurring eg. spinning board which has to colours that are not equal eg. ¾ blue and ¼ red  Identify and discuss the concept of ‘fair chance’  Design chance experiments to match given outcomes eg. likely, unlikely, possible, impossible – and record/display results |  |  |  |  |

***Data***

***Grade Three***

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| ***Related Vocabulary:*** issues, conjecture, refine questions, survey, frequency tally, data base, graphical display, Venn diagram, axis, axes, bar graph, column graph, two-way table, Carroll diagram, Karnaugh Map, computer-generated |
| ***Before this level:***  Pose questions that will lead to collection of data  Formally and informally collect, classify and record information  Represent information on pictographs and block/bar graphs incorporating a baseline and grids  Describe and interpret data in lists, tallies, and simple graphs |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Identify information required to answer questions or resolve issues (conjecture), refining the questions where necessary |  |  |  |  |
| Plan and use methods of collecting, classifying and recording data eg. surveying, frequency tallies, computer databases |  |  |  |  |
| Represent information using a variety of graphical displays; simple Venn diagrams; bar and column graphs with axes and simple scale eg. 1:10, two-way table (Carroll diagram), computer-generated graphs |  |  |  |  |
| Read and interpret own and others’ graphs, tables and Venn diagrams for specific information and to compare to predictions |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** title, label, scale, classrify, one-to-one, many-to-one (correspondence), categories, discrete data, continuous data, frequency, sets, subsets |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Identify information required to answer questions or test conjectures, refining the questions where necessary  Plan and use methods of collecting, classifying and recording data – eg. non-numerical (categories), separate umbers (discrete), or points on an unbroken number line (continuous)  Identify different types of data eg. non-numerical  Represent information using a variety of graphical displays: horizontal and vertical bar graph; pictographs using many-to0one correspondence; computer-generated graphs and two-way tables  Use criteria to construct graphs including title; labelling of exes; straight lines; appropriate scale and size; consistent spacing  Read and interpret own and others’ graphs, tables and Venn diagrams for specific information and to make comparisons and judgements and to test a conjecture |  |  |  |  |

***Space: Shape***

***Grade Three***

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| ***Related Vocabulary:*** face, edge, base, vertex (corner), apex (pointy top), horizontal, vertical, diagonal |
| ***Before this level:***  Recognise and name triangle square, rectangle, circle  Recognise and name everyday 3D shapes using informal language  Sort and describe shapes of mixed sizes according to shape  Make 2D shapes using concrete materials  Attempt to draw reasonable representations of 2D shapes  Fold simple 2D shapes to show that both sides are the same (symmetry)  Identify interior and exterior of objects |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Identify, name, and use some geometrical language to describe features of simple shapes and objects eg. triangle, square, rectangle, circle, hexagon, trapezium, diamond (rhombus), pentagon, pyramid, cube, cylinder, cone, sphere |  |  |  |  |
| Draw accurate representations of 2D shapes |  |  |  |  |
| Construct 3d shapes (pyramids) using given nets |  |  |  |  |
| Recognise and describe straight, curved, horizontal, vertical lines eg. use string to represent lines, eg. use a ruler or straight edge to make lines. Act out straight, curved etc. Use lines in the environment eg. basketball court |  |  |  |  |
| Identify right angles in their everyday environment eg. window frame, boxes. Using the corner or a page, be a right-angle detective and find right angles in the classroom |  |  |  |  |
| Make simple tessellating patterns (multiple copies of a single shape) using concrete materials |  |  |  |  |
| Identify congruent shapes |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** square-based pyramid, rectangular prism, triangular prism, polygon, hexagon, pentagon, octagon, trapezium, rhombus, translate, rotate, reflect, tessellate, skeleton, acute, obtuse, reflex, cross section, model square grid |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Recognise and describe and represent straight, curved, horizontal, vertical, diagonal lines  Identify, name and use geometrical language to describe features of simple shapes and objects eg. triangle square, rectangle, circle, regular polygons (such as hexagon, pentagon, octagon), trapezium, diamond (rhombus), pyramids, cube, cylinder, cone, sphere, prisms  Draw accurate representations of 2D shapes  Construct skeletons of 3D shapes (prisms and pyramids) using matchsticks, straws and joiners  Construct 3D shapes (prisms and pyramids) using given nets  Draw, complete and describe tessellating patterns (two different shapes)  Copy and create simple patterns involving translating, rotating and reflecting multiple copies of a shape eg. tangrams  Identify and draw congruent shapes  Draw and explain lines of symmetry on regular 2D shapes  Draw lines to construct acute and right angles accurately  Predict, cut and draw the shape of simple cross sections eg. predict then cut cross sections of objects such as fruit, playdough shapes  Construct 3D models using blocks eg. multilinks, MAB  Use a square grid to copy 2D shapes of the same size |  |  |  |  |

***Space: Location***

***Grade Three***

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| ***Related Vocabulary:*** position, direction, north, south, east, west, compass, bird’s eye view, alternative paths, distance |
| ***Before this level:***  Use simple everyday location words to follow and give an oral direction  Build models to represent familiar environments  Follow simple instructions to move from one place to another |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Use conventional location words to follow and give oral directions |  |  |  |  |
| Find, compare and describe alternative paths on simple maps, mazes or models |  |  |  |  |
| Interpret and describe location and direction using grid references and cardinal compass points (N, E, S, W) |  |  |  |  |
| Locate and name features on simple maps eg. treasure maps |  |  |  |  |
| Draw and explain maps of familiar locations including some attempts at distance, proximity and bird’s eye view |  |  |  |  |

***Grade Four***

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| ***Related Vocabulary:*** atlas, grid reference, legend, map symbols, proximity, compass |

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| ***Goal*** | ***1*** | ***2*** | ***3*** | ***4*** |
| Use conventional location words to follow and give oral and written directions  Find, compare and describe alternative paths on maps, mazes or models  Interpret and describe location and direction, using grid references and cardinal compass points (N, E, S, W)  Locate and name features on formal maps and atlases  Draw and explain maps of familiar locations including some attempts at distance, proximity and bird’s eye view, map conventions eg. compass rose, grid or map symbols and simple legends |  |  |  |  |