

YEAR 7

MATHEMATICS

2016

ACG Parnell College,

MoE No. 2085



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| WHOLE NUMBERS | |
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| **MNZC LEVELS: 3, 4** | **TIME ALLOCATION: 12 PERIODS** |
| **Learning Outcomes:**  At the end of this topic, students should be able to:   * demonstrate the use of place value * order whole numbers * use a number line to represent whole numbers * write whole numbers in numeral form and in words * write whole numbers in expanded and simple form * operate with values up to and greater than one million * round numbers to the nearest 10, 100, 1000 etc. * estimate answers by using leading figure approximations * maintain addition, subtraction, multiplication and division facts * demonstrate the instant recall of basic multiplication facts * be able to apply the rules of BEDMAS. * write and solve story problems involving one or more of the four arithmetic operations * use a calculator and mental methods to perform the four operations * perform calculations involving × and ÷ by powers of ten * use algorithms involving addition multiplication and division * recall the definition of natural and whole numbers * explain odd, even, counting, square, triangular, prime, composite and square numbers * find factors, multiples and lowest common multiples of numbers * find the prime factorisation of composite numbers * apply the distributive property. * be able to expand numbers written in index form and vice versa. * Apply the divisibility test for 2, 3,4, 5, 8, 10 | |
| **Text References:**  Signpost 7 Chapters 1 & 3 | **Assessment:**  Common Test 1  Worth 50% of S1 Term Mark |

| PROBLEM SOLVING | |
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| **MNZC LEVELS: 3, 4** | **TIME ALLOCATION: 8 PERIODS** |
| **Learning Outcomes:**  At the end of this topic, students should be able to:   * devise and use different problem-solving strategies to explore situations mathematically. * find, and use with justification, a mathematical model as a problem solving strategy. * use equipment when exploring mathematical ideas. | |
| **Text References:**  Signpost 7 Chapter 2 | **Assessment:**  Common Test 2 assessed with Algebra  Worth 50% of S1 Term Mark |

| PATTERNS & ALGEBRA | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 12 Periods.** |
| **Learning Outcomes:**  At the end of this topic, students should be able to:   * continue a numerical or spatial pattern * find missing values or diagrams in a pattern * make patterns from a rule written in words or as a general formula * write a rule in words that describes a pattern, either numerical or spatial * write a general formula to describe a numerical or spatial pattern * solve simple equations by inspection or intuition * understand the language of Algebra * find and explain in words, simple formulae that can be used to solve a practical problem * read coordinates and plot points in the first quadrant * substitute values into an equation to find the answer * apply and interpret product notation * write division of pronumerals in fraction form * simplify expressions by collecting like terms * apply Commutative properties for addition and multiplication * graph input and output pairs on a number plane for relationship rules | |
| **Text References:**  Signpost 7 Chapters 4 & 7 | **Assessment:**  Common Test 2  Combined with Problem Solving – Worth 50% of S1 Term Mark |

| ANGLES | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 4 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * apply 3 point notation to name angles * classify angles according to size * use a protractor to measure or draw an angle * calculate complementary and supplementary angles * Name a line, ray and line segment using correct notation | |
| **Text References:**  Signpost 7 Chapter 5  NZ Mathematics 7 Ex 3A page 77-78 | **Assessment:**  Tested in S1 examination. |

| ANGLES & LINES |
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| DECIMALS | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * add and subtract decimals * multiply decimals by whole numbers * multiply and divide decimals by powers of 10 * multiply and divide decimals by decimal numbers * convert decimals to fractions and percentages * understand recurring decimals * round decimals. | |
| **Text References:**  Signpost 7 Chapter 6 | **Assessment:**  Tested in S1 examination. |

| DIRECTED NUMBERS | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * order positive and negative integers * plot integers on a number line * plot coordinates on a all four quadrants of a Cartesian plane. | |
| **Text References:**  Signpost 7 Chapter 7 | **Assessment:**  Assessed in S1 examination |

| 2D & 3D GEOMETRY | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * define and name polygons with up to 8 sides * classify triangles and quadrilaterals * draw polygons using geometric symbols * find the size of missing angles in triangles and quadrilaterals * differentiate prisms and pyramids * draw nets of common 3D shapes * draw isometric and obliques projections * draw elevations of simple shapes constructed from cubes | |
| **Text References:**  Signpost 7 Chapter 8 | **Assessment:**  Common Test 4 Worth % of S2 Term Mark |

| FRACTIONS | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * Represent fractions as a diagram. * Show fractions on a number line. * Determine the numerator and denominator. * Simplify fractions. * Find equivalent fractions. * Add or subtract fractions of same denominator or of fractions that are easy to change to common denominator. * Add or subtract fractions and whole numbers including mixed numbers. * Multiply and divide fractions including mixed numbers. * Compare and order fractions. * Convert between mixed and improper fractions * Find a fraction of a quantity * Use ratios to solve practical problems. | |
| **Text References:**  Signpost 7 Chapter 9 | **Assessment:**  Tested in S2 examination. |

| MEASUREMENT | |
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| **MNZC LEVELS: 4-5** | **TIME ALLOCATION: 12 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * Understand that measurement requires the use of a common unit to compare the same attribute. * Be able to convert between length units, units of mass and convert between volume and capacity units * Determine the perimeter of 2D shapes using different measurement techniques and formulae. * Determine the area of 2D shapes by counting squares. * Calculate area of a rectangle, triangle and parallelogram using the formula. * Calculate the area of composite shapes. * Recognise, choose and use appropriate standard units of measurement for area, volume and capacity. * Determine the volume and capacity of 3D shapes by counting cubes. * Solve word problems involving area, volume and capacity. | |
| **Text References:**  Signpost 7 Chapter 10 | **Assessment:**  Common Test 5  Combined with Percentages and Probability –  Worth of S2 Term Mark |

| PERCENTAGES | |
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| **MNZC LEVELS: 4-5** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * Be able to convert fractions and decimals to percentages and vv * Find a percentage of a quantity * Find one quantity as a percentage of another * Solve percentage word problems | |
| **Text References:**  Signpost 7 Chapter 11 | **Assessment:**  Common Test 5  Combined with Measurement and Probability–  Worth % of S2 Term Mark |

| PROBABILITY | |
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| **MNZC LEVELS: 4** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * use the language associated with chance * express chance using numbers such as "nine times out of ten" or "90%" * by considering frequency tables, make inferences about a population * find all possible outcomes of an event using a systematic approach, such as the sample space * perform experiments to find the relative frequency of an event * investigate games and activities that involve chance | |
| **Text References:**  Signpost 7 Chapter 12 | **Assessment:**  Common Test 5  Combined with Measurement and Percentages –  Worth % of S2 Term Mark |

| STATISTICS | |
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| **MNZC LEVELS: 4** | **TIME ALLOCATION: 12 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * Pose questions for investigation. * Identify variables of interest to be collected. * Devise a strategy for collecting data. * Understand how to draw different bar, pie and strip, stem and leaf graphs, pictographs and dot plots. * Collect and present data using strip graphs, dot plots, bar graphs, picture graphs, stem and leaf graphs, and tally charts. * Find mean, mode, median and range of a set of data. * Talk about and consider features of data in graphs using their own language (including clusters, middle and spread). * Report on the findings of a statistical investigation, using pictures and words. * Collect and graph simple time series data. | |
| **Text References:**  Signpost 7 Chapter 14 | **Assessment:**  Statistical assignment –  Worth 34% of S2 Term Mark |

| TRANSFORMATIONS | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 8 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * use mirrors, paper folding and cutting to explore reflection and rotational symmetry * Draw in the axes of symmetry of figures * Give the order of rotational symmetry of figures. * design patterns which involve translation, reflection of rotation for example using the tangram shapes * tessellate quadrilaterals, triangles or shapes of their own design * recognise congruent shapes | |
| **Text References:**  Signpost 7 Chapter 15 | **Assessment:**  Not assessed. |

| Venn Diagrams | |
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| **MNZC LEVELS: 3 & 4** | **TIME ALLOCATION: 4 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * Organising and interpreting data using diagrams, graphs and models. * Interpreting symbols | |
| **Text References:**  Worksheets | **Assessment:**  Not assessed. |

| Venn Diagrams | |
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| **MNZC LEVELS: 4 & 5** | **TIME ALLOCATION: 4 Periods.** |
| Learning Outcomes:  At the end of this topic, students should be able to:   * Apply distributive rule to expressions with pronumerals. * Simplify expressions with index notation | |
| **Text References:**  Photocopy sheets | **Assessment:**  Not assessed. |

| Venn Diagrams |
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| Algebra Extension |
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