**Teaching and Learning Program for the Elements**

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| **T:\Office\Graham Moore\jpeg sentral logo.jpg** | **Teaching and Learning Program** | | | | | | | | | | | | | | | | | |
| **Title/Type of Unit: Number**  **Program Risk Level: Minimal** | | | | | | | | | | | | **Duration: 9 weeks**  **By** | | | | | |
| **Syllabus Outcomes**  **Stage** | *A student:*  MA5.1-1WM uses appropriate terminology, diagrams and symbols in mathematical contexts  MA5.1-2WM selects and uses appropriate strategies to solve problems  MA5.1-3WM provides reasoning to support conclusions that are appropriate to the context  MA5.1-4NA solves financial problems involving earning, spending and investing money  MA5.2-1WM selects appropriate notations and conventions to communicate mathematical ideas and solutions  MA5.2-3WM constructs arguments to prove and justify results  MA5.2-6NA simplifies algebraic fractions, and expands and factorises quadratic expressions  MA5.1-13SP calculates relative frequencies to estimate probabilities of simple and compound events | | | | | | | | | | | | | | | | | |
| **Connectedness**  **Why does this learning matter?** | **Students learn to:**   * Round decimals to up to five place values * Distribute ratios * Recurring numbers * Predict what will happen to money over time * Earning and paying money based on interest * Calculate pay based on hourly rates * Understand that profit is what is made after all expenses are paid * Predict the value of an item over a certain amount of time (depreciation) * Understand the chances of something occurring through probability | | | | | | | | **Students learn about:**   * Principal value, simple interest, compound interest, flat interest * Discounts, straight line depreciation, reducing balance depreciation * Hourly rates, double time and profit * The range of probability * Relative frequency * Tree diagrams | | | | | | | | | |
| **Background and Key Ideas** | Key Ideas: Number  Students will be developing their vocabulary around mathematical concepts and developing their number skills through the following key ideas:   * To engage students in numeracy and broaden their understanding of mathematical concepts in relation to the syllabus and work readiness * To increase students numeracy levels in regards to different number concepts * To increase comprehension skills and mental computation * Supporting the elements of learning and achievement. | | | | | | | | | | | | | | | | | |
| **Literacy Continuum** | Reading Texts | Comprehension | | | Vocabulary Knowledge | | Aspects of Writing | | | Aspects of Speaking | | | | Phonics | Phonemic Awareness | | | Concepts About Print |
| Clusters: 11  Demonstrates understanding of new words for new concepts | | | | | | | | | | | | | | | | | |
| **Numeracy Continuum** | Counting Sequences | | Counting as Problem Solving | | | Pattern and Number Structure | | Place Value | | | | Multiplication and Division | | | | Fraction Units | | Length, Area and Volume |
| Multiplication and Division  Cluster: 5  Multiplication and division operations – uses multiplication and division as inverse operations flexibly in problem solving tasks  Fraction Units  Cluster: 4  Reforms the whole – when iterating a fraction part such as one-third beyond the whole, re-forms the whole. | | | | | | | | | | | | | | | | | |
| **Quality Teaching** | | | | | | | | | | | | | | | | | | |
| **Intellectual Quality** | | | | **Quality Learning Environment** | | | | | | | **Significance** | | | | | | | |
| * IQ1 Deep Knowledge * IQ2 Deep Understanding * IQ3 Problematic Knowledge * IQ4 Higher-order Thinking * IQ5 Metalanguage * IQ6 Substantive Communication | | | | * QLE1 Explicit Quality Criteria * QE2 Engagement * QE3 High Expectations * QE4 Social Support * QE5 Students’ Self-regulation * QE6 Student Direction | | | | | | | * S1 Background Knowledge * S2 Cultural Knowledge * S3 Knowledge Integration * S4 Inclusively * S5 Connectedness * S6 Narrative | | | | | | | |
| **Teaching and Learning Lesson Overview** | | | | | | | | | | | | | | | | | | |
| **The Elements of Learning & Achievement**    F:\Mock ups\Square elements\Numeracy.jpg    E:\Final V1\Final sq NO border\Sq Technology no bdr.jpg | Students work through the booklets based on their ability  **Week 2-3**  Decimals  Work through Mathletics booklet [Decimals](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\112941911.J_Decimals.pdf)  For those working at a lower level refer to [Fractions and Decimals](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\Fractions%20and%20Decimals.pdf)  **Week 4-5**  Consumer arithmetic  Work through Mathletics booklet [Interest](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\58498072.AUS_K_Interest_AUS.pdf) & [Depreciation](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\58496470.AUS_K_Depreciation_AUS.pdf)  For those working at a lower level refer to [Earning Money](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\58492446.AUS_J_Earning_AUS.pdf)  **Week 6-7**  Quadratic equations  Work through Mathletics booklet [Quadratic Equations](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\58499345.AUS_K_Quadratic_Equations_AUS.pdf)  For those working at a lower level refer to [Simplifying Algebra](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\58495497.AUS_J_Simplifying_AUS.pdf)  **Week 7-8**  Probability  Work through Mathletics booklet [Probability](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\58495040.AUS_J_Probability_AUS.pdf)  **Week 9-10**  Overview, catch up and [assessment](file:///\\Detnsw.win\5583\Faculty\Teacher\2016%20Programs\Term%201\Stage%205\Maths\Maths%20Assessment.docx) | | | | | | | | | | | | | | | | **Aboriginal 8 Ways of Learning**  *The following ways of learning are incorporated throughout the program through pedagogical practices*  4_symbol.jpg  Symbols & Images  6_non-linear.jpg  Non-Linear    Non-Verbal  8_community[1]  Community Links | |

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| **Special Needs Adjustments** | | | | **School to Work** | | |
| * Booklets vary depending on students ability * Write down the method using butcher paper to assist with understanding * Recap previous days lesson to ensure understanding | | | | Students learn practical numeracy skills including interest and depreciation, as well as incorporating basic mathematical operations including multiplication and addition. | | |
| **Assessments** | | | | | | |
| * Students complete an assessment that covers all key topic areas in week 10 * Students complete booklets with workings * Observational data including responses to clarification questions | | | | | | |
| Roles and Responsibilities | | | | | | |
| Teacher | | SLSO | | | Student | |
| * Work with students in small groups * Ensure teaching and learning strategies are appropriate * Collect data * Assess students work and make reasonable adjustments | | * Work with students either one on one or in small groups * Ensure resources are available to complete set work | | | * Engage in all topics * Complete set work * Complete assessment in week 11 | |
| **Risk Assessment – Dorchester ETU only** | | | | | | |
| **Resources** | **Safety Strategies** | | **Identified Hazards** | | | **Control Strategies** |
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| **Teacher Evaluation**  **Comments / Variations** | |
| Guiding Questions  The booklets provided good guidance for the students and explained concepts well, which encouraged independent learning. The overall content was too heavy and students found it hard to keep up with. Some of the more advanced topics within the program made students withdraw from maths. Class 6 missed Real Numbers completely.  In regards to the Elements of Learning and Achievement, some of the more basic topic areas gave students a chance to gain practical numeracy and calculator skills. Students also used Mathletics to gain better understanding of some numeracy concepts including place value.  It may be best to find more practical solutions to some tasks and although all students should be accessing this curriculum, it is important that they work on their core numeracy skills as some of the students cannot access this work due to not having the basic skills. | |
| **Date Commenced**: | **Date Finished**: |
| **Teachers Signature**: | **Assistant Principals Signature**: |